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ABSTRACT

This publication reports the findings of an expert panel convened by the National Center for Nursing Research to address health promotion for older children and adolescents (ages 8 through 18), the role of nurses, and the contributions of nursing science. Three chapters focus on basic science, intervention, and application. Each chapter includes an introduction, a review of the state of the science, a discussion of research needs and opportunities, and a list of research recommendations based on the identified needs and opportunities. The first chapter, "Life Transitions in Late Childhood and Adolescence: Critical Points for Promoting Healthy Behavior," examines the effects of biological, cognitive, emotional, and social transitions on development and behavior. Chapter 2, "Approaches for Designing and Implementing Interventions," discusses basic concepts and principles of health promotion, types and features of successful interventions, and the effects of self- and health-related perceptions. The final chapter, "Strategies and Settings for Nursing Interventions," considers approaches for providing health promotion services to youth, and the use of traditional and nontraditional settings for health promotion. Bibliographical sketches of panel members are included. (Contains approximately 100 references.) (LL)

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Health Promotion for Older Children and Adolescents

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5 Health Promotion for Older Children and Adolescents

A Report of the NINR Priority Expert Panel on Health Promotion

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Bethesda, Maryland
1993

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PREFACE

This is the report of Priority Expert Panel F: Health Promotion for Older Children and Adolescents, one of a series of expert panels convened by the National Center for Nursing Research (NCNR) in conjunction with the development of the National Nursing Research Agenda (NNRA).[1]

The development of the NNRA began in January 1988 with a conference to develop broad priorities for the then NCNR. Approximately 50 nurse scientists with varied areas of expertise attended this conference at the NCNR's invitation. The resulting draft priorities were subsequently reviewed and reconceptualized by the NNRA Steering Committee, a subcommittee of the NINR's National Advisory Council for Nursing Research. The Steering Committee is cochaired by the Director of the NINR and a member of the Council, with committee members drawn from both Council membership and NINR senior staff.

The Steering Committee's refinement of the broad priorities resulted in the publication of the following seven more specific NINR priority areas: Low Birthweight—Mothers and Infants; HIV Infection; Longterm Care for Older Adults; Health Promotion for Older Children and Adolescents; Symptom Management; Information Systems; and Technology Dependency Across the Lifespan. For each of these areas, a Priority Expert Panel is constituted, charged with developing the priority area in depth and asked to make recommendations for more specific priorities. Doing so requires that the panels make difficult choices between a number of highly important research areas within the Panel's mandated scope. To facilitate the Panel members' decision-making, the Steering Committee developed "Criteria for Promising Dimensions." Priority areas should:

- Represent a major current or future health care need
- Be on the cutting edge of science, with potential to contribute to the development of new knowledge
- Constitute an opportunity for nursing to make a unique contribution to basic research or a unique opportunity for nursing practice research because the basic knowledge base is adequate
- Have potential for nursing research to make a unique contribution in the resolution of a health care or system problem or phenomenon
- Have potential to relieve a costly health care burden for patients and/or the delivery system
- Have an adequate number of nurse scientists available, or be promising for training
- Be of concern to nursing while receiving minimal attention from other National Institutes of Health components or other Department of Health and Human Services agencies.

The process used to develop the NNRA has been described in an editorial in the *Journal of Professional Nursing* entitled "Evolving Clinical Nursing Research Priorities: A National Endeavor" (Hinshaw, Heinrich, & Bloch, 1988), as well as in a paper (Bloch, 1990). This process and the format of the resulting publications were adapted from those used by the National Eye Institute at the National Institutes of Health (NIH) (National Institutes of Health, 1983).

The NNRA report set will consist of eight volumes. Volume 1, the Steering Committee's summary report, introduces the series. Volumes 2-8 are the reports of the seven Priority Expert Panels.

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[1] In June 1993, the NCNR was renamed the National Institute of Nursing Research (NINR).

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SUMMARY

Health promotion for older children and adolescents[1] is a complex notion embracing a wide range of activities across a critical period in the lifespan. The American Nurses Association describes health as "a dynamic state of being in which the developmental and behavioral potential of an individual is realized to the fullest extent possible" (Broering, 1993). Irwin and Vaughn refer to health as "optimal functional status" (Irwin, 1987; Irwin & Vaughn, 1988). More than the absence of disease, health is a positive process of reaching one's potential (Pender, 1990) in nonphysical as well as physical areas (U.S. Office of Technology Assessment, 1991). This process is mediated by the interaction of systems within and outside the person, including the biological, cognitive, and emotional systems, and social, economic, and political systems such as family, neighborhood, community, race, culture, and country (Millstein, 1989).

While disease prevention focuses on stabilizing the human organism, health *promotion* focuses on *actualizing human potentials* (Huch, 1991). Health promotion entails empowering individuals (Igoe, 1991; King, 1990) to take developmentally and contextually appropriate actions toward realizing their potential, which includes biological, cognitive, emotional, social, and spiritual dimensions (Pender, 1984).

This report of Priority Expert Panel F addresses the state of the science in health promotion for older children and adolescents and the needs, opportunities, and recommendations for research in this area over the next 5 years. The report focuses on the role of nurses and the contributions of nursing science. The recommendations are aimed at strengthening nursing science and improving nursing practice.

Health Promotion for Youth

Health promotion for older children and adolescents involves helping youth acquire the power (skills, knowledge, and positive attitudes), authority (permission to use their power), and opportunities to make choices that increase the likelihood of their creating positive expressions of health for themselves in their contexts (Igoe, 1991).

Effective health promotion must incorporate an understanding of what health means to individuals and how environment and their perception of that environment affect their actual and perceived health options. Health promotion activities should occur not only at the level of the individual, but also at the level of the family, community, and larger society. Meleis (1990) suggests that such strategies for fostering health include the primary health care concepts of "community participation, consciousness raising, appropriate local resources, access, options, and empowerment."

The Panel chose to focus on the ages 8 through 18 because this is a critical period for youth when they are experiencing an entire panoply of influences while trying to formulate their own identity. It is also a time when youth may be particularly sensitive to health-promoting interventions and when most youth can be approached through school or other community contexts.

Although the Panel focused on the ages 8 through 18, the members recognize that the periods before 8 and after 18 are equally important. Patterns established in early childhood can carry through adolescence, and some issues confronted in late childhood and adolescence may not be resolved until well past the late teen years. Nevertheless, older children and adolescents require different approaches to health promotion than younger children and young adults and pose a different set of research challenges. The Panel strongly recommends that the health needs of younger children be considered as an important priority area.

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[1] "Older children and adolescents" is defined by the Panel as encompassing ages 8 through 18. In the report, the terms "youth" and "young people" are also used to refer to older children and adolescents.

Nursing's Contribution to Health Promotion

What can nursing science contribute to the complex area of health promotion for older children and adolescents? Several points are relevant:

1. Most causes of mortality and morbidity in children and adolescents are due to behavior and lifestyle and are, therefore, preventable (U.S. Office of Technology Assessment, 1991).

2. Health is everyone's birthright. Health promotion strategies are needed that effectively reach *all* older children and adolescents because they *all* are vulnerable to health-compromising behaviors. Older children and adolescents face a multiplicity of health issues and challenges that offer significant opportunities for making a positive impact on the health and development of future generations.

3. Many of the behavior patterns developed in late childhood and adolescence carry over into adulthood, and most of the leading health problems of adults are associated with behaviors initiated early in life (U.S. Preventive Services Task Force, 1989). The learning of health-promoting skills and habits empowers older children and adolescents to assume responsibility for their health and can have a lifelong impact. Positive changes in health values, attitudes, and habits in childhood and adolescence are likely to result in a healthier adulthood (Mickalide, 1986).

4. Teaching and modeling appropriate self-care attitudes and skills lie at the core of health promotion efforts and have been an integral part of nursing practice.

5. Nurses, the largest group of health service providers in the United States, have more opportunities for health promotion than other groups of health care professionals. They come into direct contact with older children, adolescents, and their caregivers in a wide range of health, educational, and social service settings.

6. By virtue of their clinical skills and health education, contact with youth, credibility, visibility, and ethnic diversity, nurses are a critical component of, and link within, the network of other health service providers and the community.

The field of nursing adds a special breadth and depth to health promotion by bringing an understanding of developmental changes and transitions and their effects on health and lifestyle, and the integration of this knowledge into appropriate health interventions (Pender, Barkauskas, Hayman, Rice, & Anderson, 1992).

Recent Findings and Current Issues

In recent years, major advances have been made in understanding the health beliefs of adults and how these beliefs influence health-related behaviors. As attention has turned to the early origins of health beliefs and behaviors, childhood and adolescence increasingly have become the focus of study. During the past decade, studies have explored the meaning of "health" to children and adolescents and their beliefs about how health is maintained. Researchers are making progress in understanding how parental health attitudes and behaviors, social norms, peer pressures, and mass media affect youth's health-related beliefs and lifestyles. There is still much to be learned about cognitive aspects (perceptions, attitudes, beliefs), emotional aspects (feelings, moods, concerns), social effects (norms, culture, environment, socioeconomic status), and biobehavioral (neurohormonal) influences on the health practices of older children and adolescents.

Major influences on the health attitudes and behaviors of older children and adolescents have been identified. A number of studies suggest that certain health-promoting and health-compromising behaviors cluster together in consistent patterns and that developmental trends may predict the emergence of behaviors. Research has found that:

- Biological, cognitive, emotional, and social influences interact reciprocally to influence health attitudes and behaviors.

- Health behaviors, and related attitudes and perceptions, can be modified.

These findings raise challenging new questions for research in the next decade.

Health promotion has been a high priority for health professionals, who recognize the need to promote health and prevent disease at the primary level, rather than intervene only at the secondary and tertiary levels. This emphasis is demonstrated in *Healthy People 2000: National Health Promotion and Disease Prevention Objectives for the Year 2000* (U.S. Department of Health and Human Services, 1990) and in recent publications on adolescent health promotion by the Carnegie Council on Adolescent Development (Feldman & Elliott, 1990; Millstein, Petersen, & Nightingale, 1993) and the U.S. Office of Technology Assessment (1991). Scientific and empirical studies of various aspects of health promotion for youth are needed to meet the goals and objectives outlined in these efforts.

Many research issues related to health promotion for older children and adolescents require urgent attention. For example:

- Further examination is needed of the developmental, biological, cognitive, emotional, and social factors that differentiate young people who engage in health-promoting behaviors from those who adopt behaviors which endanger their present and future health. The interaction among neurobiological, emotional, and environmental processes is an especially important area to explore.

- Not enough is known about how race, ethnicity, gender, and socioeconomic status influence, individually and interactively, the development of health values, perceived health options, and health behaviors.

- Another research task is clarification of the range of normal variability in health-related beliefs and practices and in the biological, cognitive, emotional, social, and health status of older children and adolescents.

- Much remains to be learned about the differences and commonalities across health beliefs, actual and perceived options, and behaviors within and across underserved and disenfranchised youth who are at greatest risk for negative health outcomes. Of special concern is the empowerment of highly vulnerable young people. They include youth who are economically disadvantaged, homeless, school dropouts, victims of violence and family neglect, immigrants, gay or lesbian, alienated, chronically ill or disabled, and members of racial or ethnic minority groups (i.e., African American, Native American, Hispanic, and Asian American youth). They also include youth who have experienced substance use, unintended pregnancy, or sexually transmitted disease or who have perpetrated violent or delinquent acts.

- Vital to the success of health promotion initiatives is a better understanding of the health beliefs of young people, which include their goals, hopes, and priorities; their health interests and concerns; their perceptions about the seriousness of various health problems, their vulnerability to health problems, and the benefits and obstacles associated with taking health actions; and their preferred health information sources, methods, and settings.

Organization of this Report

The Panel applied the "Seven Criteria for Promising Dimensions" developed by the NNRA Steering Committee (see Preface) to identify the most pressing research issues regarding nursing practice and health promotion for older children and adolescents. Three broad research questions that guided the Panel's examination were formulated:

1. What are the critical points in time for promoting healthy behaviors in older children and adolescents?

2. What approaches to designing and implementing interventions are most successful?

3. How can nurses intervene most effectively, and what are the best settings for such interventions?

The Panel's deliberations and conclusions in these three areas are set forth in three chapters focusing on basic science, intervention, and application. Each chapter includes an introduction highlighting the importance of the research topic, a review of the state of the science, a discussion of research needs and opportunities, and a list of research recommendations based on the identified needs and opportunities.

The chapters are:

- **Chapter 1—Life Transitions in Late Childhood and Adolescence: Critical Points for Promoting Healthy Behaviors**

  This chapter examines the effects of biological, cognitive, emotional, and social transitions on development and behavior, as well as health promotion challenges and opportunities inherent in these transitions.

- **Chapter 2—Approaches for Designing and Implementing Interventions**

  This chapter presents basic concepts and principles of health promotion, types and features of successful interventions, effects of self- and health-related perceptions on the health behavior of older children and adolescents, effects of family and peer relationships regarding the health needs and concerns of youth, and a discussion of culturally appropriate research methods and interventions.

- **Chapter 3—Strategies and Settings for Nursing Interventions**

  This chapter considers strategies for providing health promotion services to youth, nurses' preparedness to address the health concerns of older children and adolescents, and the use of traditional and nontraditional settings for health promotion.

Research Program Goals

Recognizing the complexity and multidisciplinary nature of issues associated with health promotion for older children and adolescents, the Panel set several broad research goals:

- Increase understanding of the complex influences that affect health-related cognition, decisions, and behaviors of older children and adolescents, and of how these influences change during development.
- Examine the interactive effects of psychological, biological, and environmental aspects of development. Increase understanding of how genetic propensities can be influenced by environmental constraints that hinder, in contrast to opportunities that foster, health and health-promoting behaviors.
- Explain the biobehavioral bases for health-promoting and health-compromising behaviors, including how responses to life experiences may alter biological structures and functions.
- Develop and test interventions that focus on helping older children and adolescents adopt health-promoting cognitive and behavioral patterns in various clinical and nonclinical settings.
- Guide social policy for improving the health status of older children and adolescents.

Overview of Current NINR Research Support

NINR's health promotion and disease prevention program encourages health promotion research on nursing approaches to improve general health and health care, including ways to promote wellness and decrease the vulnerability of individuals and families to illness and disability. NINR support is provided for research in a range of areas, including the following topics related to health promotion for older children and adolescents: health behaviors and outcomes during pregnancy, health-compromising behaviors among young adolescents, nursing concerns regarding characteristics of successful dieters, factors influencing health-promoting behaviors, smoking and health behavior, and factors affecting bereavement and the care of older persons. NINR research support for disease prevention addresses particular diseases or disabilities such as hypertension, cardiovascular disease, osteoporosis, and breast cancer.

Minority health and rural health are two specific areas that the NINR is highlighting. By reaching out to minority and rural populations, who may be particularly vulnerable to disease and disability because of specific health care requirements or lack of access to care, the NINR aims to affect positively the health of an even broader segment of the American population. In community-based projects addressing the needs of African Americans and Hispanic Americans, the NINR is developing a better understanding of the cultural concepts surrounding "health," which will enable health care workers to provide more effective services.

In FY 1992, the then NCNR announced its participation in an important NIH-wide initiative to develop and evaluate interventions focused on the health behavior of minority youth. Research supported in this area will address the contextual variables (social, economic, and other factors) that influence the health behavior exhibited by minority youth, an issue identified by Priority Expert Panel F. The topics to be studied through cooperative, community-based programs include strategies for decreasing violence-related injuries and deaths, sexually transmitted diseases, unintended pregnancies, inadequate nutrition, substance use, and communication disorders.

In collaboration with other Public Health Service components, NINR researchers are also developing and testing community-based models to increase access to health care in rural areas. These studies include approaches to reduce risks for cardiovascular disease in rural schoolchildren.

In addition, the NINR supports research training initiatives to increase the participation and training of members of racial and ethnic minority groups in nursing research. The involvement of these individuals is crucial to the extension of NINR health-promotion efforts in minority communities. Recruitment and training of minority nurse researchers are required activities of Institutional National Research Service Awards and specialized center programs, and all principal investigators are encouraged to request research supplements to support the participation of minorities in research.

Research Needs and Opportunities

In recent years, investigators from many disciplines have focused on various facets of the complex field of adolescent health. The Society for Adolescent Medicine, the Society for Research on Adolescence, the American Medical Association, and the Carnegie Council on Adolescent Development of the Carnegie Corporation of New York are but a few examples of forums established by different research communities to examine adolescent health issues. Federal agencies such as the National Institute of Child Health and Human Development, the Bureau of Maternal and Child Health, the National Institute of Mental Health, and the U.S. Office of Technology Assessment, as well as state agencies, have launched substantial research, program development, and other initiatives dedicated to health promotion and disease prevention among youth. Many nursing professional associations now have chapters devoted to adolescent health. For example, the American School Nurses Association has led the development of health promotion and disease prevention guidelines for youth in schools. Nurse scientists in association with the NINR and other organizations have undertaken a wide array of studies on aspects of adolescent health and the preparedness of nurses to work with adolescents.

To strengthen the potential contributions of nursing science and to improve nursing practice in health promotion for older children and adolescents, the Panel identified a range of specific research needs and opportunities for the next 5 years, which are summarized in the rest of this section.

Chapter 1. Life Transitions in Late Childhood and Adolescence: Critical Points for Promoting Healthy Behaviors

Genetic and Environmental Influences on Development

Numerous studies suggest that the biological, cognitive, emotional, and social transitions of late childhood and adolescence make this developmental period an ideal time for interventions that encourage health-promoting attitudes and behaviors (Brooks-Gunn & Warren, 1989; Cohen, Brownell, & Felix, 1990; Green & Iverson, 1982; Lewis & Lewis, 1990; Susman, Dorn, & Chrousos, 1991; Susman, Inoff-Germain, Nottelmann, Cutler, Loriaux, & Chrousos, 1987; Petersen, 1988). The use of a developmental perspective to examine the health behaviors of children and adolescents has raised many questions about how organismic and contextual processes interact across the lifespan to influence health behavior and health outcomes (Susman, Feagans, & Ray, 1992). Longitudinal studies are needed that use a developmental framework to examine the effects and interrelationships of the biological, cognitive, emotional, and social changes of late childhood and adolescence.

Another area of research opportunity is the examination of relationships among nonshared extrafamilial influences that make siblings different in contrast to shared familial influences that make siblings alike, developmental processes, health behaviors, and health outcomes. Also important are the effects of behavior and emotions (subjective experiences) on hormone concentrations and the direction of these influences. Much remains to be learned about how experiences during transitions in childhood and adolescence may affect the timing and tempo of puberty and about the specific nature of the gene-environment interplay in the timing and tempo of pubertal events.

Biological Transitions

The investigation of how behavior and experiences affect hormone concentrations is a new area for multidisciplinary research. A key question is how different types of environments affect hormone secretion and related growth and developmental processes. Studies are needed that examine the immediate and long-term effects of hormonal changes on health and behavior. The effects of stress during developmental transitions on health of children and adolescents are unknown. The interaction of genetic, neurobiological, and behavioral processes is almost unchartered territory. Major issues have arisen in studies of the relationship between pubertal development and behavior which involve the use of proxy and self-report measures, the use of perceptual measurement, and the need to clarify the direction of the effects of maturational status.

Cognitive Transitions

Stages of Cognitive Development. Health promotion interventions that clearly incorporate various stages of cognitive development into intervention strategies are almost nonexistent. Another unexplored frontier is the interactive effects of the timing of cognitive and pubertal development on health beliefs and behaviors. Little is known about practical intelligence, or how older children and adolescents think about everyday problems. Also needed is greater understanding of adolescent metacognition and the ability to identify cognitive inconsistencies, information gaps, and inacccuracies in applying what one knows (Keating, 1990). Practical intelligence and metacognition play a crucial role in understanding the health-related decision-making of youth. Group differences in the tempo of cognitive development and the effect of differences in tempo on responses from peers or adults are areas that merit further empirical study. A frontier yet to be explored is the interactive effects of the timing of cognitive and pubertal development on health beliefs and behaviors.

The relationship between sociocultural context and individual cognitive development merits further scientific investigation insofar as different communities produce variations in the specific genetic and social resources of children and adolescents. Interventions are needed that assist families, schools, and communities in structuring youth activities to teach health promotion lessons. Designing and testing of culturally sensitive interventions responsive to valued goals and skills in a given social context are essential to the development of effective health promotion interventions for diverse populations.

The Meaning of Health. Several studies show that age, gender, and cultural differences in the meaning or conceptualization of health should be explored within a developmental framework (Dielman, Leech, Becker, Rosenstock, & Horvath, 1980; Mickalide, 1986). Particularly critical is longitudinal research describing how physiological, emotional, and social transitions interact to affect cognitive representations of health.

Self-Esteem. Ambiguous definitions of self-esteem, inadequate measuring instruments, and lack of theory have plagued studies of self-esteem in childhood and adolescence. Although the relationship of self-esteem (and other dimensions of self) and health behavior has been demonstrated, there are no data on the interrelationships of these variables across developmental stages in diverse populations of youth.

Emotional Transitions

Important topics include individual differences in the experience and expression of emotion (emotionality) among older children and adolescents; the effects of context on emotionality (e.g., experiences with families, peers, and communities); and the relationships between transitions in late childhood and adolescence, emotionality, and healthy lifestyles and behavior. Yet to be explored is the contribution of emotions and emotional transitions to increases in adjustment problems, psychiatric disorders, delinquent and antisocial behavior, substance use, and health problems.

Social Transitions

Family Transitions. Research is needed to examine critical factors that determine the differential impact of normative family transitions (such as asserting independence) on youth of various genders, temperaments, and developmental maturity. The effects of non-normative transitions (such as parental divorce), in combination with normative transitions, on health attitudes and behaviors of youth are not well understood. Coping with divorce, which affects more than 30% of U.S. children (Emery, 1988) appears to have profound effects and needs closer examination. Another topic for investigation is the effect of normative transitions of youth on family members, particularly parents, and how youth and parents can be assisted in benefiting from these transitions. Also critical are studies that identify factors in youth associated with psychological resilience and successful coping with divorce to provide a basis for designing interventions that help youth sustain and enhance mental and physical health during this potentially high-stress transition (Grych & Fincham, 1992).

Peer Group Transitions. Information about how transitions in peer groups affect peer modeling, peer support, and peer teaching processes will establish a stronger foundation for designing effective, peer-based interventions. Strategies for extending contacts with family members and other adults within a peer-intensive context to promote health is a promising direction for further research. Also needed are studies of intraindividual and interpersonal processes that foster resilience and health-promoting life goals for alienated youth.

School Transitions. Few studies have contrasted various racial and ethnic minority groups in terms of adjustment to school transitions (Simmons, Black, & Zhou, 1991). Such analyses are essential to the development of more successful interventions for vulnerable youth. In addition, there is much to be learned about the impact of school transitions on health perceptions and behavior. An important research task is the examination of changes in views of health and well-being and health-related attitudes, values, beliefs, and behaviors that occur before and immediately after transitions in school environments.

Workplace Transitions. At the cutting edge of adolescent health research is the exploration of social, psychological, and health consequences associated with transitions in the workplace. Of special interest are the positive and negative effects of work on the experience of adolescence and on adolescent health, especially for youth in high school. Related topics for investigation include the influence of positive and negative work role models; the impact of work-related fatigue and stress on adolescent lifestyles, resistance to disease, and emotional well-being; and use of the workplace as a setting for health promotion.

Chapter 2. Approaches for Designing and Implementing Interventions

Theoretical Bases for Health Promotion Among Youth

The attributes used in conceptual and operational definitions of empowerment in late childhood and adolescence need to be identified and refined. Yet to be defined and tested are specific, age-appropriate social norms and expectations for youth participation in health-related situations inside and outside the health care system. Cognitive and emotional variables such as age-appropriate knowledge, sense of efficacy, and external or internal locus of control for health merit further investigation, as do behavioral variables, such as skill development, to support self-responsibility and self-management of health-promoting behaviors at different ages.

A significant task for research in older children and adolescents is the development of theories that identify factors influencing motivation and explain the relationships among them. In need of examination are the strengths and weaknesses associated with four major models used to explain and predict health behavior (the health belief model, the health promotion model, the theories of reasoned action and planned behavior, and self-efficacy theory) and the relevance and adaptation of such frameworks to older children and adolescents, and the formulation of models that address not only individual behavior, but also developmental factors and contextual variables. These variables include ethnic and racial factors; socioeconomic factors; community characteristics; characteristics of the health care delivery system; and relationships with peers, significant family and nonfamily adults, and health professionals (Bracht & Tsouros, 1990; Wallerstein, 1992).

Little is known about the success of social learning interventions in fostering healthy behaviors and lifestyles among older children and adolescents. Knowledge regarding the effectiveness of skills development as a protective factor against health-compromising behaviors in various contexts needs to be expanded and applied to the design of health promotion interventions for diverse populations of youth.

Interventions: Types and Features

Successful interventions provide services that are flexible, intensive, comprehensive, accessible, and culturally and developmentally appropriate, and use caring, respectful professionals (Dryfoos, 1990; Schorr & Schorr, 1988). New intervention models should incorporate current knowledge on approaches that work best with older children and adolescents. The long-term effects of health promotion interventions for youth need to be explored.

Effects of Self- and Health-Related Perceptions and Interpersonal Relationships on Health Behavior

Youth Perceptions. An important issue is how self-perceptions and relationships with family and peers enable some young people at apparently high risk for negative outcomes to develop health-promoting attitudes and behaviors. Better understanding is needed of how older children and adolescents at different developmental stages and in different cultures view their health, vulnerability to health problems, and health options, and how they make choices that affect their health. Their perceptions of the social norms for consumer behavior and of their role in interacting with health professionals are largely unknown. Other topics for investigation include the impact of contextual factors, such as education, economic status, and social class (Millstein, 1993), on the health perceptions and behaviors of youth.

An overreliance on chronological age as an indicator of developmental status and excessive use of survey methods have characterized much adolescent health research. Indicators of developmental status other than chronological age should be utilized since wide variations in the timing of biological maturation can occur among youth of the same age. In addition, adolescent health research should combine qualitative and quantitative approaches. When used to determine whether adolescents have particular health-related concerns, survey methods miss important qualitative differences in how adolescents interpret these concerns at different ages and stages of development (Millstein, 1993).

Family Relationships and Health Perceptions and Behaviors. Intervention models are needed that address the effects of cultural and community contexts on how families communicate about and influence their adolescents' health. Not enough is known about the characteristics and relationship dynamics of family members, significant nonfamily adults, and peers that help older children and adolescents adopt health-promoting behaviors. Also, investigators have not succeeded in demonstrating experimentally how to modify risk factors, such as poor relationships at home and at school, which are predictors of drug and alcohol abuse and early, unprotected sexual intercourse.

A limited number of investigations have explored the relationship between parental lifestyle practices and health behaviors of offspring in childhood and young adulthood. Additional research is needed to determine the stability of these relationships over time.

Peer Relationships and Health Perceptions and Behaviors. Recent work on peer influence processes, the age of greatest susceptibility to negative peer influences, and the nature of peer groups as normative reference groups suggests a need to explore and refine through empirical studies new approaches to health promotion and prevention that address the positive and negative effects of peer relationships on health behaviors (Asher, 1983; Dishion & Loeber, 1985; Hartup, 1983; Irwin, 1987).

Nurses' and Other Service Providers' Perceptions. The extent to which nurses' perceptions of healthy lifestyles interface with youth perceptions is an important issue. Of special interest are studies that compare the meanings of health and health-related perceptions of youth and nurses, as well as studies that determine how similarities and differences in these perspectives influence the effectiveness of communication and interventions with youth.

Culturally Appropriate Research Methods and Interventions

Ethnic minority children and adolescents and their families are a rapidly growing segment of the population. By the year 2000, minority youth will comprise one-third of all young persons under 20 years of age. Attention must be paid to the cultural, ecological, and structural factors that influence their health if health promotion efforts are to be effective. Research methods should be adopted that permit the collection of accurate data about differences between and within ethnic and gender subgroups of young people, and the development and testing of culturally and gender-sensitive health promotion interventions aimed at ethnic minority youth. Research also should address the differential impact of cultural and socioeconomic factors. Study designs need to explicitly include an understanding of the cultural context and its influence on the beliefs, values, and expectations of older children and adolescents from their point of view. Crucial to successful health promotion is the identification of intervention methods, activities, language, and communication styles that relate to the expectations and values of target individuals and groups and their models of health. In addition, changes in cultural context, such as school transitions, are experienced by most older children and adolescents and merit considerably more research attention.

Chapter 3. Strategies and Settings for Nursing Interventions

Nurses in Health Promotion and Disease Prevention

A central question is how nurses can collaborate with other health professionals to maximize health promotion interventions for youth. The extent to which nurses are providing health promotion services, the nature of these services, and the factors that may facilitate or hinder their provision of effective services need to be examined. Also required is a better understanding of the relationship between nurses' communication styles and behaviors and how older children and adolescents interpret health promotion messages.

Another issue is whether nurses and other health professionals are adequately prepared to play an optimal role in implementing health promotion interventions among youth. Particularly important is more information from diverse populations of older children and adolescents on perceived needs and obstacles to receiving health and health promotion services and taking positive health actions. In addition, research is needed to determine how best to enhance the skills of health professionals in providing health promotion services to youth (Bearinger, Wildey, Gephart, & Blum, 1992).

Settings for Implementation

Studies are needed to identify health care and nontraditional settings that, when combined with appropriate health promotion strategies, might offer the greatest potential for effectively reaching disenfranchised youth. Of special interest are data on how older children and adolescents perceive traditional and nontraditional health promotion settings (Millstein, 1993). More information is required on how organizational factors in health care institutions affect health promotion interventions for youth and family members. A crucial task is investigating ways to promote healthy environments for youth and their families, particularly in communities with high rates of violence and vulnerable young people. A detailed understanding also is needed of the constraints and opportunities for promoting healthy lifestyles among youth in rural settings. One important point is the economic constraints of providing health promotion services to adolescents. The number of uninsured adolescents has grown tremendously during the 1980s.

Training and Personnel Needs

The Panel recognizes that significant advances in adolescent health and health promotion research require a blending of expertise from many disciplines, including the biobehavioral sciences, nursing, medicine, psychology, sociology, education, and anthropology. The multidisciplinary nature of this field poses a special challenge to nurse investigators to broaden their knowledge, skill, and experience. The Panel particularly recommends that nurse scientists without specific research training in the biobehavioral sciences receive opportunities to gain such training. Research training in the biobehavioral sciences can be gained informally through directed readings and close collaboration with appropriate research programs or formally through pre- and postdoctoral or senior fellowship support. Curricula should be developed to support research training at the predoctoral level, particularly to enhance the preparedness of nurse practitioners to work with older children and adolescents. Institutions that choose to participate in such training should offer intensive preparation in research methodology and statistics, encourage the development of a strong theoretical knowledge base, and provide researchers and practitioners to serve as mentors. Also vital is research training that increases the capacity of nurse investigators to conduct sound, sensitive, and creative research on health and health promotion for minority youth.

Summary of 1992-1997 Recommended Priorities

The Panel's recommendations, presented in the three chapters that follow, are based on an assessment by the Panelists and their consultants of the current state of knowledge in the areas most likely to yield significant understanding for improving the health of older children and adolescents over the next 5 years. In addition, the Panel identified three broad priority recommendations that cut across the three chapter topics. These general recommendations are provided below, followed by the specific recommendations listed in each chapter. The specific recommendations do not appear in order of priority. They are designed to serve as a guide and are not intended to stifle innovative projects that offer promise of important advances in health promotion for older children and adolescents.

The Panel's three broad priority recommendations for the next 5 years are:

1. Examine the interactive effects of behavioral and biological processes, including the timing of developmental and social transitions, on health actions and outcomes.

2. Investigate family, school, and community strategies for adopting and maintaining health-promoting behaviors among youth in rural and urban settings. Special attention should be given to highly vulnerable youth who are economically disadvantaged, homeless, school dropouts, members of racial or ethnic minority groups, immigrants, gay or lesbian, alienated, or chronically ill or disabled.

3. Develop and test culturally appropriate, innovative health promotion interventions that incorporate both educational and contextual components in outreach settings and focus on the collaboration of nurses with other health professionals.

Regardless of the topic or focus, the Panel urges nurse investigators to adopt a multidisciplinary approach and actively seek collaboration with colleagues in other biomedical and social sciences to maximize the contributions of all researchers.

The Panel's specific recommendations in the three topic areas are given below.

Life Transitions in Late Childhood and Adolescence: Critical Points for Promoting Healthy Behaviors

Genetic and Environmental Influences on Development

- Investigate the genetic and environmental influences on biobehavioral correlates of health and on continuity and change in health-related developmental processes in late childhood and adolescence.

Biological Transitions

Endocrine Physiological Changes

- Design longitudinal studies that examine the effects of experiences and behavior on pubertal timing and tempo.

- Examine the effects of increases in puberty-related hormones on health-promoting attitudes, motivations, and behaviors.

Effects of Hormones on Behavior

- Investigate the interface between biological transitions (puberty) and cognitive, emotional, and social transitions in late childhood and adolescence. Examine the effects of the timing and tempo of puberty on health and cognitive, emotional, and social development.

Cognitive Transitions

Stages of Cognitive Development

- Examine the effects of changes in cognitive processing (including the development of metacognition) and of contextual influences on practical decision-making involving health-compromising and health-promoting behaviors in late childhood and adolescence.

- Explore gender and other population differences in the timing and tempo of cognitive development and the effects of differences in timing and tempo on health beliefs and behaviors.

- Investigate the interactive effects of cognitive abilities and pubertal development on retention and application of health information and on psychological and social adjustment in late childhood and adolescence.

- Develop valid and reliable measures for assessing stage of cognitive development as part of client assessment for youth in health care settings. Test the effectiveness of health promotion interventions tailored to the stages of cognitive development.

The Meaning of Health

- Design longitudinal studies that use a biopsychosocial framework to assess developmental changes in health beliefs and behaviors throughout the adolescent years, focusing on the effects of biological, cognitive, emotional, and social transitions.

- Explore the origins of health cognitions and health-related motivation and the relationship between meanings of health and illness across stages of cognitive development. Assess gender, cultural, and ethnic similarities and differences in the meaning of health among older children and adolescents.

Self-Esteem

- Investigate the determinants of continuity and change in self-esteem as a multidimensional construct, and explore the interrelationships among dimensions of self-esteem and health behavior in diverse populations of children and adolescents.

Emotional Transitions

- Examine emotions as mediators and moderators of the relationships between biological transitions and health, focusing especially on how puberty-related, neurobiological transitions affect emotions and health.

- Determine how emotions enhance or impede healthy or unhealthy behavior, with particular emphasis on the role of positive emotions in avoiding unhealthy, risk-taking behavior. Assess differences in emotions related to enhancing health-promoting behavior between and within gender and ethnic subgroups.

- Design studies to explain how emotions preceding the biological, cognitive, and social transitions of late childhood and adolescence influence the ways in which youth cope with these changes. Examine the influence of peer, family, and community contexts on emotional stability and change across biological, cognitive, and social transitions.

Social Transitions

Family Transitions

- Conduct multicultural studies to contrast and compare responses of youth to stressful and potentially stressful family transitions (such as divorce, unemployment, and changes in residence or schools), and to determine how such transitions affect health and cognitive, emotional, and social development. Identify the coping strategies and environmental contexts of youth who successfully deal with these transitions.

- Develop and test model programs that promote experimentation with healthy, alternative lifestyles at critical transition points as youth become increasingly independent and responsible for self. Identify intervention strategies that best prepare youth to adjust to, and utilize the growth potential of, stressful and potentially stressful family transitions.

- Investigate the development of adaptive and maladaptive risk-taking behaviors and their relationship to family and cultural norms, socioeconomic status, age, developmental differences, individual and social expectations, the meaning of "risk behavior" to youth, and the covariance among risk behaviors and individual developmental trajectories.

Peer Group Transitions

- Explore the health and nonhealth reasons that youth and their peers engage in health-compromising and health-promoting behaviors, and identify the multiple mechanisms through which peers influence health-related behaviors.

- Develop and test intervention strategies that build multidimensional peer and family support for healthful lifestyles.

School Transitions

- Examine differences and similarities in the effect of school transitions on health attitudes, motivations, and behaviors of youth from different economic, racial, and ethnic backgrounds. Investigate patterns of change across school transitions in specific domains of self-perception, such as social and physical competence.

- Test the effectiveness of health promotion interventions prior to and after school transitions and associated changes in values, beliefs, and behavioral norms. Explore the balance of interventions needed to optimally promote healthy development.

Workplace Transitions

- Explore the effects of early work experiences on the health and behavior of adolescents from various economic, racial, and ethnic backgrounds. Investigate the influence of work experience on adolescent psychosocial development.

Approaches for Designing and Implementing Interventions

Theoretical Bases for Health Promotion Among Youth

- Test the effectiveness of conceptual models of social skill development, problem-solving, and decision-making in assisting youth from different cultural and community contexts to develop and maintain health-promoting behaviors.

- Test the effectiveness of conceptual models of community participation in health promotion interventions focusing on diverse populations of youth.

Interventions: Types and Features

- Design and test developmentally appropriate health promotion interventions for youth that involve regular, periodic contact with health professionals. Evaluate the interventions' effectiveness in promoting long-term maintenance of a variety of healthy behaviors. Identify factors in the community that help and hinder intervention effectiveness. Explore strategies for maximizing helpful factors and minimizing unhelpful factors.

- Determine how current technologies, such as interactive videos and computer-assisted programs with self-learning modules, can best be used in various educational, health, and social settings in diverse communities to promote health among older children and adolescents.

Effects of Self- and Health-Related Perceptions and Interpersonal Relationships on Health Behavior

Youth Perceptions

- Investigate the linkages between health perceptions of youth and health-promoting behaviors.

- Develop and test intervention strategies aimed at individuals, groups, and communities to (a) build developmentally appropriate social competence, responsibility for one's own health, sense of self, autonomy, and empowerment; (b) promote healthy stress management; and (c) foster conflict resolution and violence reduction among diverse populations of youth.

Family Relationships and Health Perceptions and Behavior

- Determine how parents' efforts to support and monitor their children at different ages affect the development of autonomy and health-promoting and health-compromising behaviors. Explore how such efforts increase or decrease the positive and negative influence of peers and significant nonfamily adults.

- Investigate approaches used by families from different cultural and community contexts to manage information that affects the healthy development of their preadolescent and adolescent children. Identify family strategies and community factors that maximize health promotion opportunities during developmental transitions.

Peer Relationships and Health Perceptions and Behavior

- Investigate individual characteristics and styles (e.g., sensation seeking) and community characteristics that help to determine peer group membership and types of influence on health-enhancing behaviors.

- Develop and test alternative, theoretically driven health promotion interventions aimed at individuals and communities to maximize the positive impact of peers and minimize their negative influence. Incorporate strategies that take into account the characteristics of youth, their close friendships, peer group norms, and community characteristics.

Nurses' and Other Service Providers' Perceptions

- Assess the extent to which nurses' perceptions of healthy lifestyles interface with youth's perceptions. Identify the implications for health-promotion strategies.

Culturally Appropriate Research Methods and Interventions

- Develop culturally sensitive instruments that consider language effects, acculturation, and generational effects.

- Identify culture-specific personal and environmental influences on the health behavior of youth, including culture-specific influences associated with school transitions that affect health behavior.

- Develop and test culturally sensitive health promotion and disease prevention interventions in various settings, including schools, taking into account changes in beliefs, values, and norms associated with school transitions among diverse populations of youth. Test the balance of interventions prior to and after transitions which is needed to optimally promote healthy development.

Strategies and Settings for Nursing Interventions

Nurses in Health Promotion and Disease Prevention

- Investigate the effectiveness of multidisciplinary teams of health and education professionals, including nurses, in initiating and participating in health promotion programs for youth.

- Investigate the extent to which the characteristics of providers, including communication styles, behavior, education, and experience, affect and best promote health promotion and disease prevention among youth.

- Identify the most effective approaches for enhancing the skills of health professionals in providing health promotion services to youth.

Settings for Implementation

- Test the effectiveness of incorporating health promotion interventions for youth into traditional health care settings, such as emergency facilities, school-based clinics, home health visits, and other primary care sites including health maintenance and managed care organizations and private care practices.

- Test the effectiveness of alternative models and outreach strategies in settings such as youth-serving community agencies, shelters for runaways and the homeless, malls, churches, and youth-employing worksites.

- Compare the health behavior of youth in different community settings. Identify and assess the relative importance of community characteristics that promote or constrain health-promoting activities and healthy lifestyles (such as parks, recreation facilities, libraries, community organizations, and school-based clinics). Determine how these characteristics affect the balance of primary, secondary, and tertiary health services that are needed, and examine the contributions of nurses given different balances.

- Explore strategies for promoting healthy environments for youth and families, particularly in communities with high rates of violence and vulnerable young people.
- Examine the special constraints and opportunities for health promotion for rural youth, and explore strategies for addressing these constraints and building on positive alternatives available to rural youth.

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LIFE TRANSITIONS IN LATE CHILDHOOD AND ADOLESCENCE: CRITICAL POINTS FOR PROMOTING HEALTHY BEHAVIORS

Childhood and adolescence are formative phases during which knowledge grows, values and attitudes are shaped, and behavior patterns develop that may be retained into adulthood and exert a lifelong influence on health and disease. Many behaviors initiated in adolescence persist into adulthood including eating patterns, substance use, and contraceptive use. Findings from a variety of studies suggest that the biological, cognitive, emotional, and social transitions of late childhood and adolescence make this developmental period an ideal time for interventions aimed at promoting healthy lifestyle trajectories (Brooks-Gunn & Warren, 1989; Cohen, Brownell, & Felix, 1990; Green & Iverson, 1982; Lewis & Lewis, 1981/82; Petersen, 1988; Susman, Dorn, & Chrousos, 1991; Susman, Inoff-Germain, Nottelmann, Cutler, Loriaux, & Chrousos, 1987).

Nurses are in direct contact with older children and adolescents and their caregivers. Youth are a captive audience in schools and other community settings where they spend significant amounts of time. In their roles as counselors, advocates, educators, or caregivers, nurses can:

- Serve as role models to youth, assisting them in achieving positive outcomes and avoiding negative ones
- Capitalize on the exploration and experimentation typical of childhood and adolescence by helping older children and adolescents learn values and behavior patterns that are health promoting rather than health compromising
- Influence reproductive health and other aspects of health status across the lifespan
- Contribute to enhancing overall health, decreasing health care costs, and increasing quality of life across the lifespan.

This chapter describes research findings and promising avenues of research on life transitions. It suggests powerful, new ways of helping all young people acquire health-promoting perspectives and behaviors. The following topics are examined:

- Effects of genetic and environmental influences and their interaction on developmental transitions
- Health promotion challenges and opportunities inherent in the major biological, cognitive, emotional, and social transitions of late childhood and adolescence.

State of the Science

A Developmental Perspective

To explain and predict individual behavior, a developmental perspective is important. This perspective is based on changes that occur in biological, cognitive, emotional, and contextual processes across the lifespan. Current developmental frameworks emphasize the integrated nature of individual functioning. Individual development is viewed not as the product of changes in single entities, but rather as the result of the integration of biological, cognitive, emotional, and social processes over time (Magnusson & Cairns, in press). The developmental framework that has evolved over the last few decades reflects the confluence of developmental psychobiology, cognitive theory, life-course sociology, and related developmental science disciplines.

Advances in developmental theories and related methodological and statistical analysis techniques now permit assessment of developmental changes in late childhood and adolescence. The many biological, cognitive, emotional, and social changes that youth experience make this period especially well suited for studying how changes in one domain may affect changes in other domains of physiology and behavior. Such research has great potential for contributing significantly to the state of the science of health promotion for older children and adolescents.

Much of the research on adolescent health has largely focused on specific health problems that initially were presumed to be independent, such as unintended pregnancy, substance use, and eating disorders. Delivery systems such as trauma centers, family planning centers, and substance abuse treatment programs also concentrated on single issues. This orientation has led to a fragmentation of policy, funding, and service focused on health problems rather than on health promotion. Little attention has been given to how one behavior might co-occur with other behaviors (Susman, Koch, Maney, & Finkelstein, in press). Failure to attend to this co-occurrence or clustering of health-compromising behaviors has further limited the investigation of behavioral linkages. Considerable evidence supports the concept of covariation of behavior (Irwin & Millstein, 1986; Jessor & Jessor, 1977; Osgood, Johnston, O'Malley, & Backman, 1988), and some evidence indicates that the onset of certain behaviors may be determined by different factors (Irwin & Millstein, 1991). Other data suggest that relationships among children's health-related behaviors may vary as a function of developmental status (Terre, Drabman, & Meydrech, 1990).

Examining the health behaviors of children and adolescents within a developmental perspective facilitates exploration of how internal factors (individual genetic profiles and biological, emotional, and cognitive processes) and external, contextual factors (macro- and micro-environmental processes) interact across the lifespan to influence health behavior and outcomes (Susman, Feagans, & Ray, 1992). The emphasis on developmental processes and dynamic interactions leads to a holistic approach to health promotion research that permits the analysis of relationships among influences previously studied in isolation.

The notion of reciprocal interactions, reconceptualized by Lerner (1986) as "goodness of fit," suggests that older children and adolescents are both producers and products of their environments. The emphasis on interaction suggests that developmental change occurs throughout the lifespan and, because organism and context are always involved in reciprocally influenced exchanges, the focus of research should be on both. Research stressing developmental interrelationships among biological, behavioral, and contextual processes in diverse populations is consistent with the holistic perspective of *Healthy People 2000: National Health Promotion and Disease Prevention Objectives for the Year 2000* (U.S. Department of Health and Human Services, 1990), which underscores the importance of addressing the whole person and advocates research on person-environment interaction.

Changes in biological, cognitive, emotional, and social processes encompass both subtle, nonobvious, and obvious transition points. Such developmental transitions create opportunities for growth that can lead to radical and lasting changes in life circumstances, including health. Understanding the transitions involved in development sheds light on the types of interventions needed, the transition points, and the areas of individual or family functioning to promote health and empowerment among youth.

Transitions are not once-in-a-lifetime events that arise unexpectedly and exert a deterministic influence over the remaining lifespan (Pickles & Rutter, 1991). Rather, they are dynamic processes that evolve over time and that consist not only of a critical turning point, but also of interlinked, chain effects before and after the turning point. Transitions may be relatively rapid, such as the birth of a child, or prolonged. Transitions may be stressful. The risk and protective factors of individuals and their contexts influence how they respond to biological, cognitive, emotional, and social transitions. In addition, strategies individuals use to deal with major transitions may reflect strategies they adopt to cope with smaller transitions and daily challenges.

Transitions can accentuate individual differences in development. Caspi and Moffitt (1991) suggest that disruptive transitions reinforce, rather than change, existing personality characteristics. In the sample of adolescents they investigated, presumed stressful transitions of early puberty generated new behavior problems or accentuated premenarchal dispositions. Their results were interpreted as supporting an accentuation model in which stressful transitions accentuate already existing problems. More research is needed to understand the short- and long-term effects of major changes in life experiences on psychological and biological development.

Genetic and Environmental Influences on Development

Researchers have investigated extensively the interaction of genetic and environmental influences on specific characteristics of the physical, cognitive, emotional, social, and behavioral domains of development in late childhood and adolescence. Most theoretical frameworks of development, supported by data accumulated from twin and adoption studies, indicate that both genetic and environmental factors are important determinants of development. However, the relative contributions and interplay of genes and environment in determining individual differences in characteristics and developmental process are controversial.

An individual's phenotype (his/her observed characteristics) is influenced by genes and environment. Genes guide the construction of enzymes and proteins and act as both blueprints and schedules for development. Broadly construed, the environment is the external input to the developmental process. The complete developmental process of any human organism involves a complex series of interactions between the genes and the sequence of environments within which the organism develops (Loehlin, 1992).

Recent studies have examined the influence of environmental factors on observed characteristics. Developmental behavioral genetics have emerged in the past two decades with sophisticated methods and models designed to partition the environmental influences (sources of variation) into shared and nonshared environmental influences on development.

Numerous investigators have focused on *shared environmental influences*, defined as variables (e.g., child-rearing styles) that operate to make siblings, for example, alike. Although these shared familial influences could make siblings different, they usually are conceptualized in terms of producing similarities because siblings' exposures may be fairly equal. Nonshared environmental influences are those that operate to make siblings different. Birth order is a prototypical example of a nonshared environmental influence. However, the effects of birth order and other family variables are shown to be inconsistent across studies (Rodgers & Thompson, 1986).

Rowe and Plomin (1981) categorize *nonshared environmental influences* as perinatal traumas, differential parental treatments, extrafamilial influences (different peer groups and teachers), and accidental factors. These categories are not exhaustive. However, they represent an initial attempt to identify sources of environmental variation that make siblings different.

A consensus has developed among scholars from many disciplines regarding the impact of shared and nonshared family environmental influences on social and cognitive characteristics. Plomin and Daniels (1987), summarizing the research on these environmental influences, emphasize that "children in the same family experience practically no shared environmental influence that makes them similar for behavioral traits" (p. 15), and they point to the nonshared environment as the most important source of environmental variance for psychosocial characteristics and intelligence after childhood.

Scarr (1992) delineates a model of genotype-environment correlation that proposes that individuals make their own environments. According to this model, "individuals construct experiences from exposures to various environments that are uniquely correlated to that individual's perceptions, cognitions, emotions, and more enduring characteristics of intelligence and personality" (p. 9). As Scarr (1992) acknowledges, the model depends on individuals having a varied environment from which to choose and construct experiences. In reality, the choices of many children and adolescents are limited by their social environment as constructed for them by their socioeconomic class and ethnicity. Scarr's analyses do not include impoverished and multiethnic youth. Other conceptualizations of the environment characterize the genotype-environment interplay in developmental processes and outcomes in diverse populations of youth (Plomin, DeFries, & Loehlin, 1977; Wachs, 1983).

Biological Transitions

The biological changes that occur in late childhood and early adolescence are rapid and pervasive. Puberty, a primary biological change, includes adrenarche (development of the adrenal gland) and gonadarche (development of the gonads and secondary sex characteristics). During adrenarche, the adrenal gland secretes increasing amounts of adrenal androgens in both boys and girls. During gonadarche, the gonads secrete increasing amounts of gonadotropins and gonadal steroids.

The hormones secreted by the adrenals and gonads have been found to be related to a variety of behaviors in young adolescents (Brooks-Gunn & Warren, 1989; Inoff-Germain, Arnold, Nottelmann, Susman, Cutler, & Chrousos, 1988; Nottelmann, Susman, Dorn, Inoff-Germain, Cutler, Loriaux, & Chrousos, 1987; Susman, Dorn, & Chrousos, 1991; Susman, Inoff-Germain, Nottelmann, Cutler, Loriaux, & Chrousos, 1987; Udry & Billy, 1987). This research supports decades of speculation that the increase in puberty-related hormones is related to the health and behavior problems of adolescents. However, the mechanisms whereby hormones affect health and behavior are not yet understood. An emerging research frontier consists of identifying the role of psychological experiences and contextual influences on hormone concentrations at puberty.

Endocrine Physiological Changes. Endocrine physiological changes during puberty are multiple and may pervasively influence adolescent behavior (see Reiter, 1987, for a review of the major endocrine changes of puberty). These hormonal events initiate visible (somatic) changes as well as nonvisible (hormonal) changes. The former consist of the development of visible primary and secondary sex characteristics, which are detected by adolescents, parents, and health care providers (Dorn, Susman, Nottelmann, Inoff-Germain, & Chrousos, 1990). In girls, somatic changes occur between 8 or 9 and 15 years of age and include pubic and axillary hair growth, breast development, ovarian maturation, changes in body shape and proportions, and menarche. In boys, somatic changes occur between 10 and 16 years of age and include pubic and axillary hair growth, voice change, muscle development, spermatogenesis, and change in body shape and proportion.

The hormone and physical growth changes that occur in late childhood and early puberty are implicated in the social, emotional, and cognitive changes of puberty. These changes also are thought to be related to changes in metabolism and behavior that predispose adolescents to health problems or protect them. For boys, free testosterone (FTI) is a principal predictor of sexual motivation. The rise in testosterone at puberty also may contribute to an increase in aggressiveness which, if inappropriately channeled, can result in behavior problems or unhealthy risk-taking behaviors. For girls, androgen-mediated and estrogen-mediated development have been shown to exert independent influences on the initiation of sexual activity (Smith, Udry, & Morris, 1985; Udry, 1988). The rise in estrogen also may be a protective factor against cardiovascular disease. Other changes occur as well in both boys and girls, some of which are protective and some of which are not.

Effects of Hormones on Behavior. Hormones are thought to affect development through two different mechanisms: Organizational and activational influences of hormones (Phoenix, Goy, Gerall, & Young, 1959). *Organizational influences* stem from prenatal and perinatal hormone exposure that affects the structure or functioning of the central nervous system such that development is altered. Recent studies have provided information strongly suggesting that even adult neural regions can respond to hormonal manipulation with dramatic structural changes (Gould, Woolley, & McEwen, 1991), but this plasticity in neuronal circuits has not been established in humans. *Activating influences* stem from contemporaneous effects of hormones on behavior. These effects involve regulation of previously established neuronal circuits beyond the prenatal period.

Because of the gender differences in sex steroid concentrations, differences in hormone concentrations are hypothesized to contribute to gender-specific behavior (e.g., males are more aggressive than females because of their greater androgen concentrations). The extent to which organizational influences on sexual differentiation during early gestation affect later activational influences and gender influences remains controversial. At the heart of the controversy on gender-specific behavior is the issue of the relative importance of organizing influences of hormones compared with postnatal socialization influences.

The physiological and behavioral processes whereby hormones and behavior interact are hypothesized to involve four different mechanisms (Buchanan, Eccles, & Becker, 1992):

1. Hormone concentrations can alter structures necessary for carrying out behavior, and increases in physical size and strength can increase the potential for aggressive behavior.

2. Hormone concentrations can alter peripheral systems such as the sensory systems; and menstrual-cycle-related changes in vision,

smell, and general arousal tendencies may affect mood and behavior.

3. Hormone concentrations may influence central nervous system (CNS) processes such as autonomic nervous system or neurotransmitter activity.

4. Hormone concentrations may affect CNS processes (e.g., the limbic system) involved in the regulation of emotions. The finding of hormone receptor sites for gonadotropins, estrogen, and many other hormones in specific brain regions suggests that hormones are important as neuroregulators of emotions.

Researchers are only beginning to examine how hormones affect behavior. Yet to be understood are the specific neurobiological mechanisms at the receptor, neurotransmitter, and cellular levels that connect hormones and behavior. Hormones undoubtedly do not have a one-to-one relationship with behavior. Rather, they act in concert with other complex psychological and neurobiological processes to influence behavior.

Cognitive Transitions

Changing health-compromising habits late in life is difficult (Brownell, Marlatt, Lichtenstein, & Wilson, 1986). Consequently, cultivating an appreciation of the value of health and developing health-promoting beliefs and lifestyles among young people may be the most promising strategy for improving longevity and quality of life for future generations. Knowledge of the health-related belief structures of older children and adolescents is necessary not only to improve communication between health care providers and youth, but also to understand the salient dimensions of health that motivate individuals to adopt and maintain healthy lifestyles at various points in the lifespan.

Children in various stages of cognitive development process health information differently and respond differently to the same health information. After reviewing studies examining the relationship between cognitive stage and understanding of health and the cause, treatment, and prevention of illness, Mickalide (1986) concludes that, "Cognitive developmental processes need to be taken into account when designing health promotion and disease prevention programs for the school age population. Children are not miniature adults: their health problems tend to be more acute than chronic; their perception of the linkages between behavior and health outcomes are more obscured; and their ability to assume personal responsibility for health decisions is more limited. Successful intervention strategies must be carefully tailored to adapt to the child's continual growth and development" (p. 19).

Four basic approaches, described below, have been used to examine adolescent cognition.

1. Psychometric or differential psychology models examine individual differences in the ability to perform cognitively complex tasks. Standardized instruments (e.g., IQ measures) are administered to compare the performance of one individual to population norms.

2. Developmental stage theories, exemplified by Piagetian models of cognition, focus on the emergence and progression of logicomathematical capabilities through several stages of growth thought to be universal.

3. Information processing approaches seek to understand the cognitive processes (attention and memory) associated with performing tasks in the laboratory or real world.

4. Cognitive socialization or contextualist models, for which Vygotsky is well known, consider the effects of social interaction, including parent-child and teacher-student relationships as well as culture and social class, on cognitive development (Keating, 1990).

In late childhood and adolescence, a number of cognitive shifts occur. Older children differ from younger children in that they process more information more efficiently, have a larger knowledge base, and are capable of metacognition or cognitive self-regulation (the capacity to detect cognitive inconsistencies, information gaps, and inaccuracies in applying what one knows) (Keating, 1990).

Older children and young adolescents more than young children, and older adolescents more than young adolescents, tend to demonstrate the capacity to think abstractly as well as concretely, to adopt a multidimensional rather than one-dimensional perspective, to see things in relative rather than absolute terms, to be self-reflective and self-aware, to think about alternatives and consequences when making decisions, and to assess the credibility of information sources (Keating, 1990).

However, older children and adolescents typically have difficulty applying their potential for more complex thinking to practical problems, especially when circumstances are stressful, time-limited, and dynamic rather than static. Many decisions involving health issues, such as substance use, sexual behavior, and driving a motor vehicle, may be made under such circumstances. Adolescents frequently engage in egocentric thinking which impedes their ability to make decisions. Such cognitive constructs as imaginary audience behavior arise during adolescence and often reinforce adolescent feelings of invulnerability (Gary & Hudson, 1984; Goodens, 1984; Pesce & Harding, 1986).

Factors that help youth use their increased cognitive capacities in daily life include (1) practice with effective simulations of real situations, and (2) opportunities to learn cognitive processes (thinking skills) and relevant content (knowledge) simultaneously, rather than acquiring thinking skills independently of the context in which they will be implemented. Such findings have significant implications for health promotion research and interventions and public health education.

Stages of Cognitive Development. According to the sociohistorical perspective of cognition, cognitive development occurs in the context of social relationships that are experienced throughout childhood and adolescence (Altman & Rogoff, 1987). Cognitive skills develop primarily through social transactions in a given sociocultural and historical milieu (Vygotsky, 1987) and cannot be understood without reference to the individual's social context. Children, as novices, are considered apprentices in thinking, active in their efforts to learn from observing and participating with peers and adults. Through social transactions, children and adolescents develop an understanding of culturally determined problems and become skilled in solving these problems using the tools accessible to them. In addition, they apply their understanding and skills to solve new problems. Thus, knowledge is not only transmitted, but also transformed creatively in the process of appropriation (Rogoff, 1990).

In examining cognition within a sociohistorical perspective, the basic units of analysis are no longer the properties of the individual, but rather social events and the processes of sociocultural activity (Vygotsky, 1978) as the child acts and transacts with his or her social world. Vygotsky (1987) proposed that cognitive processes occur first as a social phenomenon and are then internalized and transformed into individual cognitions. The child's or adolescent's "zone of proximal development" is a dynamic region of sensitivity to learning in which development proceeds as youth participate in activities slightly beyond their competence with the assistance of adults or more skilled peers.

The activities available to youth for observation and participation have a profound influence on what they learn and how they develop (Rogoff, 1990). Guidance from family or community members and participation with them in culturally valued activities are essential to cognitive development. This guidance occurs in the context of parent-child relationships as well as relationships with significant others, including siblings, grandparents, teachers, neighbors, and peers. Interaction takes place not merely in dyads, but in rich configurations of mutual involvement. For example, the primary benefit of peer interaction is the sharing of problem-solving activities and perspectives (Forman, 1987; Light & Glachan, 1985). Intervention studies that focus on promoting healthy behaviors through social skills training rely on analysis and synthesis of envisioned social situations, with peers as a means of fostering positive behavioral changes (Duffy & Coates, 1989; Nelson & Carson, 1988).

Although biological maturation of the nervous system sets the parameters for intellectual possibilities at any given time, cultural and educational environments are indispensable to the realization of these possibilities. West and King (1985) use the term "ontogenetic niche" to describe the notion that organisms inherit not only parent's genes, but also the parents themselves, the places that they inhabit, and the products of their cultural history, including the technology to solve problems. The effects of biological and sociocultural heritage on development are inseparable.

Variability is central to the process of development. Rather than development proceeding to a single universal endpoint, multiple courses and directions of development are expected across diverse sociocultural groups. Thus, scientists seeking to understand health promotion processes in children and adolescents must be culturally sensitive to valued goals and skills and open to multiple value systems relevant to health.

Children learn a great deal about how to manage themselves during everyday social interactions within the cultural contexts in which they are raised. By observing others and participating in routine activities at home or in the community, they may acquire many positive or negative health-related behaviors early on without much specific instruction. Some children do not develop health-promoting life skills in any cultural context, either because their home culture is devalued and potential links to the dominant culture are not explored or because their home culture suffers such economic and social stress that the culture loses its strength and coherence. This explanation may apply to some children from socioeconomically disadvantaged backgrounds who do not develop adequate problem-solving skills (Rogoff, 1990).

The Meaning of Health. The meaning of health to older children and adolescents merits the attention of researchers because differences in meaning may influence the behaviors of youth and subsequent health outcomes. In the past two decades, researchers have focused increasingly on understanding the health-related cognitive structures of children and how these structures change over time.

Developmental studies of the health beliefs of older children and adolescents have dealt primarily with changes in children's concepts of illness rather than health (Burbach & Petersen, 1986; Gochman, 1970; Kalnins & Love, 1982). In addition, research has emphasized the cognitive aspects of the meaning of health, whereas emotional, cultural, and gender aspects of health seldom have been examined.

Health defined as the absence of illness focuses on preventive maneuvers. Health defined as exuberant well-being focuses more expansively on the actualization of human potential. Explaining health as a positive, enabling concept in its own right rather than defining it simplistically by its absence (illness) has caused a shift to a more complex health paradigm.

Prior studies investigating the concept of health across stages of cognitive development have been cross-sectional (Alexander, 1989; Eiser, Patterson, & Eiser, 1983; Hester, 1983; Natapoff, 1978, 1982; Rashkis, 1965), which limits the extent to which they can contribute to the charting of actual developmental changes in the meaning or cognitive structures of health. Common definitional themes reported by investigators when youth are asked to define health include "being able to do what I want to do," "being in good condition," "having a strong body," and "being fit and full of energy" (Millstein & Irwin, 1987; Natapoff, 1978). Even chronically ill children define health in terms of being able to be active and being happy or joyful (Kieckhefer, 1988). These definitional themes are predominantly positive in tone, indicating that a clinical definition of health as the absence of illness may lack relevancy for youth. Intervention strategies based on an "absence-of-illness" concept of health may be ineffectual, whereas strategies that emphasize maintenance of health could be highly successful.

Older children demonstrate formal operational (abstract) thought when they describe illness as short-term and health as long-term, the two conditions co-existing with each other (Natapoff, 1982). These findings coincide with Pender's (1987) conceptualization that health and illness can co-exist, but *health* is the primary life experience. Millstein and Irwin (1987) specifically addressed the issue of the meaning of health and determined that health and illness are overlapping rather than separate constructs.

The ability of older children and adolescents to conceptualize health and illness as co-existing realities means that youth experiencing repetitive acute illness or chronic illness can learn to view health promotion and health as appropriate personal goals. Older children and adolescents with diabetes mellitus, for example, can be encouraged to think of themselves not as diabetic children but as healthy children with diabetes, a condition that is only a part of the greater whole of who they are. The extent to which concepts of health or healthy self vary across stages of cognitive development in children with chronic illness or frequent bouts of acute illness is not known.

Emotional Transitions

For decades, a link has been hypothesized between disease and emotional responses to stressful life experiences. Health-related emotions tend to be viewed primarily in relation to stress (Chrousos, Loriaux, & Gold, 1988). The notion that emotions play a role in promoting health is supported by recent advances in theoretical perspectives and a few empirical studies. An accurate understanding of emotions during childhood and adolescence is a critical component of effective nurse-patient relationships and health promotion interventions.

Emotions are the centerpiece of most theoretical perspectives on late childhood and adolescence. This developmental period has been characterized as a time marked by emotional perturbations ranging from minor mood variability to major mental health problems, violence, and other antisocial behavior. Almost no studies focus on processes mediating the relationship between emotions and health in childhood and adolescence. Such research is needed to provide an empirical basis for relating the emotional transitions of childhood and adolescence to health. Emotional development is almost unchartered territory (Hauser & Smith, 1991; Petersen & Craighead, 1986).

Theories of emotions are diverse. "Emotionality," broadly defined as the experience and expression of emotion, sometimes is considered an aspect of temperament (Buss & Plomin, 1984). This perspective views emotions as instrumental in regulating arousal tendencies. The ability to regulate arousal tendencies may constitute a protective factor for health and well-being. The ability to modulate anger, for instance, may protect against cardiovascular disease.

Other perspectives on emotionality emphasize the importance of two reciprocal dimensions: (1) adolescent development influences on affective experience and expression, and (2) emotional currents and experiences unique to adolescence that influence emotions (Hauser & Smith, 1991). The effects of adolescent development on emotion are described or alluded to in theories, everyday nomenclature, and the media. The notion that adolescence is a developmental period characterized by storm and stress (Hall, 1904) has been popular since the earliest versions of modern adolescent theory. Contemporary views on adolescence have maintained that adolescents are moody and irritable, alternate between elation and depression, and promote conflict and tension within the family. Emotional crises were seen as appropriate responses to the major cognitive, emotional, and social changes that accompany entry into adolescence (Hauser & Smith, 1991). Unlike earlier theories, the current consensus is that adolescence is not a time of significant emotional distress for all individuals, although some adolescents experience some forms of emotional disturbance (Offer, Offer, & Howard, 1981; Petersen, 1988; Powers, Hauser, & Kilner, 1989). The recent emphasis on individual differences in development is supported by findings that there are diverse pathways to adjustment during the childhood-to-adolescence transition. The discovery of diverse pathways through adolescence supports the notion that the *unique* experiences of adolescence affect emotionality.

Pubertal Transitions and Emotionality. The complex and interrelated psychological and social changes that accompany pubertal transitions affect emotionality in ways that researchers have begun to examine only recently (Paikoff & Brooks-Gunn, 1991; Susman, Dorn, & Chrousos, 1991; Susman, Inoff-Germain, Nottelmann, Cutler, Loriaux, & Chrousos, 1987). The biological changes of puberty, for instance, may affect emotions directly or indirectly. The indirect effects of pubertal development on emotions may be mediated by their effects on physical development (see Brooks-Gunn, Petersen, & Eichorn, 1985, on the timing of maturation effects). The timing of physical development in early- or late-maturing adolescents may lead to emotions, including anger, depression, and anxiety.

The direct effects of pubertal changes on emotions may be a result of hormones acting on the CNS (Buchanan, Eccles, & Becker, 1992). Susman and colleagues (Susman, Inoff-Germain, Nottelmann, Cutler, Loriaux, & Chrousos, 1987) proposed that the effects of puberty-related hormones (gonadotropins, sex steroids, and adrenal androgens) on behavior (for example, aggression) are mediated by emotions (such as anxiety and depression). In a study of young adolescents, the sex steroids testosterone and estradiol were not related to aggressive and delinquent behavior problems (Nottelmann, Susman, Dorn, Inoff-Germain, Cutler, Loriaux, & Chrousos, 1987; Susman, Inoff-Germain, Nottelmann, Loriaux, Cutler, & Chrousos, 1987) or to dominance-related interactions with parents (Inoff-Germain, Arnold, Nottelmann, Susman, Cutler, & Chrousos, 1988). Adrenal androgens were related to aggressive behavior. Testosterone was related, however, to the negative emotions of depression and anxiety concurrently and longitudinally across a 1-year period (Susman, Dorn, & Chrousos, 1991).

Thus, sex steroids tended to be negatively related to anxiety and depression in healthy adolescents. Even when controlling for chronological age, lower levels of sex steroids in young adolescents indicate that the timing of maturation is an important feature of the hormone-emotion link. The adolescents studied tended also to have higher levels of androstanedione and cortisol levels. One interpretation is that lower levels of sex steroids, accompanied by higher levels of androstanedione and cortisol, form a hormone profile associated with high levels of stress. These findings suggest that emotions may affect the timing of puberty and other reproductive transitions.

Impact of Emotions on Genetic Expression. The importance of emotionality and genetics for healthy development is illustrated in a promising new neurobiological theory of affective disorder (Post, 1992). Post suggests that sensitization to stressors and episode sensitization occur and become encoded in the genes. Evidence to support this proposition is that the first episode of an affective disorder is associated with major psychosocial stressors, whereas later episodes may be less likely to be associated with psychosocial events. The kindling model is used to show how initial episodes of depression are evoked by stressors, whereas later episodes appear spontaneously. According to Post's theory, stressors and the biological concomitants of affective disorder episodes induce the proto-oncogene *c-fos* and other transcription factors that affect expression of transmitters, receptors, and neuropeptides, thereby altering responsivity to stressors later in development. The initial stressors and the episodes of affective disorders that follow may leave residual traces in the genes, rendering an individual vulnerable to future occurrences of affective disorders. This perspective suggests a possible genetic mechanism for the effects of contextually initiated stressful events and associated emotions on the neurobiology of emotional development.

Cognitive and Emotional Transitions: Interrelated Processes. Cognition and emotionality have tended to be studied separately in nursing and related sciences. Theories of emotion now emphasize that cognition and emotion are intertwined (Fisher & Lamborn, 1989; Sroufe, 1979). Fisher and Lamborn propose that, as adolescents acquire the new cognitive skill of abstract reasoning, the experience and expression of more complex emotions become possible. Examples of such emotions are jealousy and resentment, which are more sophisticated experiences than the basic emotions of anger, sadness, fear, joy, and love. The interrelatedness of cognition and emotion, and health and illness, is important to examine because of the rapid biological, cognitive, emotional, and social transitions that occur in late childhood and adolescence (Susman, Feagans, & Ray, 1992).

Social Transitions

Late childhood and adolescence is a period of transition, particularly in relation to families, peers, school, and work. During these transitions, differing social norms and expectancies emerge that require psychosocial adaptations by adolescents as they adjust to a changing context for daily living. How transitions impact older children and adolescents is of particular interest to health professionals who work with youth because it may be possible to augment the positive effects of these transitions through health promotion interventions that could have a life-long impact on well-being and adjustment.

Family Transitions. Many studies have focused on the change in centrality of family during adolescence (Coates, 1987; Cochran & Riley, 1988; Grotevant & Cooper, 1985; Steinberg, 1985). These studies report similar results, with peers increasing in importance, compared to family, and more time spent in peer contact. However, families continue to be an enduring influence on youth. Family transitions of major significance experienced by most adolescents include being granted increased independence and responsibility for self. Other important transitions experienced by some youth include parental separation or divorce, geographic relocation, loss of siblings, or exposure to natural disasters. Since the transition to increased independence affects most youth and divorce affects an increasing number of older children and adolescents in the United States each year, these transitions are used as examples of critical family-related events that offer opportunities for personal growth and challenge as well as increased vulnerability.

Asserting independence is an important developmental task during adolescence that prepares youth to leave their family of origin and assume responsibility for themselves and others. Previous studies disagree on whether males are given more independence or independence training than females, and on whether males are allowed to be independent earlier (Hoffman, 1977; Maccoby & Jacklin, 1974; Weitzman, 1979). Nesselroads and Baltes (1974) and others reported that males scored higher on independence than females during adolescence. In a major study of urban youth, Simmons and Blyth (1987) reported that, in relation to parental supervision, boys as compared to girls were allowed to date earlier, stay home alone earlier, and go places without parental supervision. Parents also expected sons to act older and plan for careers sooner than daughters. Girls who have attained menarche, as compared to their nonmenarchal peers, are allowed more independence by parents and more frequently perceive themselves to make their own decisions. Early as compared to middle or late developers of both genders are expected to act older by their parents. Females who have attained menarche also perceive that their parents and teachers expect them to be more involved in occupational planning than premenarchal females. Thus, both gender and the tempo of biological changes trigger very different psychosocial responses in adolescents, particularly females.

The quest for independence offers critical transition points at which parents and health professionals can assist youth in developing knowledge, skills, and motivation to pursue health-promoting instead of health-compromising lifestyles. Health professionals in schools and school-based and school-linked clinics and community youth organizations should assume, with families, primary responsibility for structuring health promotion programs geared to adolescents' need for increased independence. Providing older children and adolescents with multiple health-promoting options takes advantage of their natural predisposition to experimentation by giving them stimulating and interesting opportunities to try out new, healthy behaviors.

Coping with separation and divorce and related family transitions appears to have profound effects on older children and adolescents. In the United States, more than 30% of children experience family dissolution through divorce (Emery, 1988). Numerous studies indicate that although some youth adapt successfully to parental divorce with no apparent long-term ill effects, others exhibit poor short- and long-term adjustment (Amato & Keith, 1991; Hetherington, 1988, 1989). Adjustment problems reported in previous studies include aggression, conduct disorders, depression, anxiety, withdrawal, difficulties in social interactions, and poor academic performance (Forehand, McCombs, Long, Brody, & Fauber, 1988; Forehand, Thomas, Wierson, Brody, & Fauber, 1990; Petersen & Zill, 1986). Fear of disappointment in love relationships, lowered expectations of themselves and their capabilities, and a sense of helplessness are reported by youth as long as 10 years after parental divorce (Wallerstein, 1984, 1987).

Prior investigations have focused primarily on dysfunctional or pathological outcomes for youth in response to parental divorce. Research emphasizes the importance of examining the following factors as mediators of adjustment by youth after parental divorce: the child's cognitive and emotional developmental status at the time of divorce, the child's level of adjustment before the divorce, the child's gender, standard of living after the divorce, custody arrangement, visitation pattern, parental dating patterns, parental remarriage, and interparental conflict. A number of investigators have suggested that interparental harmony, as opposed to conflict, may be critical to adolescent adjustment after parental divorce (Block, Block, & Gjerde, 1986; Long & Forehand, 1987; Long, Forehand, Fauber, & Brody, 1987).

Peer Group Transitions. Social networks undergo developmental changes as children move into and through adolescence. During early adolescence, the preference for same-sex friends is intensified, which may reflect efforts to explore gender-role expectations or seek same-sex support in anticipation of puberty-related changes (Blyth & Foster-Clark, 1987; Burmeister & Furman, 1987). Studies have shown that males tend to develop more extensive friendships and females more intensive friendships (Berndt, 1981; Bryant, 1985; Tietjen, 1982). Social competence seems to be related to extensive friendships for males and intensive friendships for females (Bryant, 1985; Waldrop & Halverson, 1975).

Peer friendships increase as contact with adults decreases. These peer group transitions occur at a time when supportive adults might be helpful in socialization to adult roles (Blyth, Hill, & Thiel, 1982; Feiring & Lewis, 1991). Although frequency of contact decreases between parents and adolescents, parental influence seems to prevail in the domains of future planning and certain problematic current situations. Adolescents tend to talk with family rather than peers about school, work, and the future. Peer groups become increasingly important in adolescence as a source of information about successful coping strategies, presenting oneself to relevant social groups, handling autonomy, building an identity, providing and receiving social support, and managing time (Brown, Eicher, & Petrie, 1986; de Armas & Kelly, 1989). Previous studies have found that one of the most important developmental tasks in adolescence is handling relational conflicts, such as serious conflicts with a partner or best friend and betrayal by a friend (Palmonari, Pombeni, & Kirchler, 1989; Pombeni, Kirchler, & Palmonari, 1991). Adolescents who reported being lonely had fewer warm and friendly interactions with peers rather than fewer interactions per se (Brennan, 1982; Jones, 1981). In several studies, greater identification with peers also correlated with stronger identification with families (Coleman & Hendry, 1990; Grotevant & Cooper, 1985; Hunter, 1985).

Balance in identification with both family and peers seems to be health-promoting if healthy role models exist in both groups. The presence of such role models provides an interpersonal environment in which older children and adolescents observe the attitudes, behaviors, and decision-making patterns of older adults while simultaneously gaining exposure to their own cohorts' attitudes and behavioral patterns. Health professionals can serve a critical function as adult role models who encourage older children and adolescents to develop expectations and behaviors compatible with health-promoting lifestyles.

School Transitions. The most dramatic changes in social context experienced by many older children and adolescents are the transitions from elementary to middle or junior high school, and from middle or junior high school to high school. School transitions entail major shifts in norms, values, beliefs, relationships, and behaviors for many older children and adolescents. Although these transitions are age-related and normative, they require adjustment and can have both positive and negative outcomes that may be short- or long-term. School transitions can offer opportunities for growth or threaten coping capacities, depending on factors such as the number and timing of school-related changes, the extent to which they co-occur with other transitions, and the ability of health and education professionals and parents to provide youth with appropriate support.

The goal of health and education professionals working with youth is to structure programs and interventions that maximize the positive health consequences of transitions and minimize the negative consequences. Maximizing the positive health consequences of school transitions requires knowledge of how older children and adolescents typically respond to such transitions, as well as an understanding of youth who may need special assistance in coping successfully with school-related changes. Outcome measures selected for assessment in studies to determine the impact of school transitions include school achievement, self-esteem or self-concept, extracurricular activities, and independence.

Most studies have shown a decline in school achievement, as indicated by grades, following transitions to junior high and high school (Blyth, Simmons, & Bush, 1978; Blyth, Simmons, & Carlton-Ford, 1983; Felner, Primavera, & Cauce, 1981). These transition-related disruptions may reflect the stress of change or different academic standards as an individual moves up the educational ladder. Girls not only exhibited lower grades after a school transition, but also reported lower participation and leadership in extracurricular activities (Simmons & Blyth, 1987). Transitioning earlier compared to later and twice compared to once seems to have a greater negative impact on school performance (Crockett, Petersen, Graber, Schulenberg, & Ebata, 1989).

Although *self-esteem* tends to increase over time during late childhood and adolescence, a number of studies have shown that self-perceptions are affected by school transitions. There is emerging evidence that declines occur in specific areas of self-perception, such as perceived social competence and perceived physical competence, after the transition to junior high (Wigfield, Eccles, MacIver, Reuman, & Midgley, 1991). In particular, the year after entry into a new school may result in lowered self-esteem (Blyth, Simmons, & Bush, 1978; Blyth, Simmons, & Carlton-Ford, 1983; Wigfield, Eccles, MacIver, Reuman, & Midgley, 1991), particularly for girls. Further, Hirsch and Rapkin (1987) found increased psychological symptoms among girls in 7th grade after transition from elementary school, supporting the hypothesis that lack of developmental readiness for transitions has considerable effects. Being "at the bottom" in a new school seems to require considerable coping capacity. Simmons and Blyth (1987) also have shown that the effects of school transitions, particularly when they occur early (after 6th grade) may be more detrimental for girls than when they occur later (after 8th grade), and the effects may persist in subsequent grades.

Although not all studies find declines in self-esteem with school transitions (Fenzel & Blyth, 1986; Jones & Thornburg, 1985; Thornburg & Jones, 1982), it appears that the earlier the school transition, the more likely youth will have somewhat immature coping skills, which puts them at risk. Multiple school transitions requiring repeated adjustments, rather than providing experiences through which youth can learn to adjust better to subsequent transitions, may be cumulative stressors if no attempt is made to increase youth's coping skills (Simmons & Blyth, 1987). Girls seem to be more susceptible to these disruptive effects than boys, as evidenced by poorer body image after transition (Crockett, Petersen, Graber, Schulenberg, & Ebata (1989). In contrast, some researchers have identified positive effects of school transitions, such as decreased strain in interactions with peers and teachers (Fenzel, 1988), increased expectations for beginning to assume adult roles, and increased self-responsibility (Simmons & Blyth, 1987). According to Wigfield and associates, research suggests that changes in adolescents' self-perceptions may be related to differences in junior high and high school environments compared to prior school environments (Wigfield, Eccles, MacIver, Reuman, & Midgley, 1991). These differences include greater emphasis on evaluation and social comparisons among students, stricter grading standards, and different social networks.

Workplace Transitions. Part-time employment among adolescents has increased dramatically over the past three decades. From 1953 to 1983, the percentage of 16- to 17-year-olds who spent some time in the labor force while in high school rose from 29% to 36% (U.S. Department of Labor, 1985). Most adolescents report working sometime while in high school (D'Amico, 1984).

Work experience can make an important contribution to the cognitive, emotional, and social development of adolescents. For example, youth often adopt older workers as role models. They may learn positive or negative attitudes and behaviors depending on whether they have access to and choose positive or negative role models. The health effects of transitions from school to the workplace are not yet well defined and have not been studied in any depth. The impact of long work hours on academic performance has received some attention in the field of education, and researchers are beginning to explore the effects of work experiences on health-related behaviors. Steinberg and colleagues (Greenberger & Steinberg, 1986; Steinberg & Dornbusch, 1991; Steinberg, Fegley, & Dornbusch, 1993) have examined the relationships between work hours in high school and psychological outcome. Long work hours were associated with increased anxiety, depression, fatigue, tension, and low self-esteem. In appropriate amounts and in healthy settings, work experience may help youth develop self-confidence, promote a self-directed orientation, enhance organizational abilities, and foster feelings of autonomy.

Research Needs and Opportunities

A Developmental Perspective

Past research on health promotion for youth has been limited by several key shortcomings: a focus on illness, cross-sectional research designs, and no assessment of change over time. To learn more about how to best promote health among diverse populations of youth, longitudinal studies are needed that use a developmental framework to examine the effects and interrelationships of the biological, cognitive, emotional, and social changes of late childhood and adolescence.

Genetic and Environmental Influences on Development

The collective results of developmental, behavioral, and genetic research suggest new directions and provide new methods for investigating the interplay of genes and environment and their components, as well as their relative contributions to developmental processes. A fertile area for future research is the continued examination of nonshared influences (e.g., variables that make siblings dissimilar). Of special interest are the identification of additional nonshared influences and the mechanisms through which they operate to differentiate children within families across diverse populations, as well as the exploration of behavioral differences most strongly related to specific nonshared influences and how they operate. Also critical is research on the relationships among nonshared extrafamilial influences, developmental processes, health behaviors, and health outcomes.

Conceptual models and empirical methods provided by research on developmental behavioral genetics make possible a clearer examination of the influences of genetic and environmental factors on the interrelation of biological and behavioral processes in childhood and adolescence. Longitudinal studies are needed that begin in late childhood and continue through adolescence, encompassing two 5-year cycles. Such studies, although costly, would provide data essential to understanding the determinants of continuity and change in developmental processes. This information is requisite to designing effective and timely interventions focused on health promotion.

Although the role of genetic and environmental factors in the timing of pubertal events has been examined, there are no data on the tempo of puberty and the specific nature of the gene-environment interplay in the timing and tempo of pubertal events. Marshall and Tanner (1969, 1970) demonstrated the importance of genetic factors by comparing identical twins and fraternal twins. The mean difference in the age at which menarche occurred for identical twins was 2 months. Fraternal pairs demonstrated an 8-month difference. Nutrition, socioeconomic status, stress, and secular trends have been observed to influence the timing of pubertal events (Bullough, 1981; Tanner, 1990). Yet to be explicated is the interplay of these factors in the timing and tempo of puberty in diverse populations.

Biological Transitions

Endocrine Physiological Changes. The endocrine changes that form the biological substrate of development of primary and secondary sex characteristics have been examined in relation to problems of adjustment among pubertal-age adolescents. This research provides the theoretical and methodological basis for needed studies that expand the exploration of endocrine processes and related growth changes. In addition, the biological transitions of puberty provide a visible anchor for launching new studies of the cognitive, emotional, and social changes in late childhood and adolescence for youth in various contexts.

Effects of Hormones on Behavior. The hormones released during puberty have been hypothesized to affect behavior at puberty. Current thinking proposes that hormones have a unidirectional influence on behavior (i.e., hormones affect behavior). The exploration of how behavior and experiences affect hormone concentrations is a new area for multidisciplinary research. Recent investigations of humans show that greater numbers of behavior problems and negative emotions are related to higher levels of adrenal androgens and cortisol (hormones secreted in response to stress) and lower levels of gonadal hormones (e.g., testosterone and estrogen) (Nottelmann, Susman, Dorn, Inoff-Germain, Cutler, Loriaux, & Chrousos, 1987; Susman, Dorn, & Chrousos, 1991; Susman, Inoff-Germain, Nottelmann, Cutler, Loriaux, & Chrousos, 1987; Susman & Petersen, 1992). The direction of these influences was not determined, however, in these cross-sectional studies. In addition, studies are needed that examine the immediate and long-term effects of hormonal changes on health and behavior.

Results from studies with humans, combined with animal studies showing the effects of stress-status changes on cortisol and testosterone (Sapolsky, 1982), provide the theoretical basis for a new generation of studies examining the effects of experience on hormones. Experiences associated with the transition from childhood to adolescence may have an effect on biological processes, specifically, the timing and tempo of puberty. Much remains to be learned about the influence of these transitions on hormones.

The effects of stress during developmental transitions on the health of children and adolescents are unknown. Research on the links between health and behavior in children lags behind those on adults (Susman, Feagans, & Ray, 1992). Studies investigating precipitants of, and reactivity to, stress resulting from biological, cognitive, emotional, and social transitions may explain many health-promoting and health-compromising processes. Coping behaviors, individual psychological strengths, and family and peer supportive networks may moderate potentially harmful biological processes, resulting in positive rather than negative health outcomes.

The relationship between pubertal development and behavior has become an active area of research. Several major issues in this area need to be considered, however, in the development of a research program on health promotion for older children and adolescents:

1. Studies continue to rely on "proxy" measures for pubertal maturation except when actual physical examinations and hormone measures are done. These proxy measures (Petersen, Crockett, Richards, & Boxer, 1988) and self-report measures of pubertal maturation may not be valid or reliable (Dorn, Susman, Nottelmann, Inoff-Germain, & Chrousos, 1990; Schlossberger, Turner, & Irwin, 1992).

2. What is actually being measured needs further clarification. Petersen, Crockett, Richards, and

Boxer (1988) have argued that the perceptual measure of pubertal maturation may be more important in predicting behaviors than biological measurement. If this notion is correct, what is actually being measured needs to be identified in each study.

3. Evidence has emerged recently suggesting that the direction of the effects of maturational status is unclear. Belsky, Steinberg, and Draper (1991) point out that pubertal development generally is treated as an independent variable, and psychological and behavioral development are treated as dependent variables. Yet pubertal timing may be an outcome of social experience and not the cause of social experience. For example, Belsky, Steinberg, and Draper (1991) propose that sexual maturity may be hastened by social cues in the environment such as household stress or a father's absence.

Cognitive Transitions

Stages of Cognitive Development. A number of important questions about cognitive development in late childhood and early adolescence warrant investigation. Little is known about the development of practical intelligence, or how adolescents think about and resolve everyday problems. This knowledge is necessary to establish a scientific basis for planning education and other interventions designed to help older children and adolescents make health-promoting decisions. A better understanding of adolescent metacognition could greatly enhance efforts to help youth monitor their own health-related decision-making processes, identify knowledge gaps, and find ways of filling these gaps with timely, accurate information.

Motivation plays a key role in cognitive development and decision-making in older children and adolescents. Youth are known to choose health-compromising behaviors even when they are aware of the risks. Such decisions do not necessarily reflect faulty thinking. Rather, they may be the product of complex analyses taking into account motivational factors unacknowledged by researchers, health care professionals, and educators. Greatly in need of investigation are the contextual influences that affect cognitive development and decision-making, which may include a wide range of family, peer, community, cultural, educational, and socioeconomic factors (Keating, 1990).

Although much has been written about the stages of cognitive development among children and adolescents, health promotion interventions that clearly incorporate various stages of cognitive development into intervention strategies are almost nonexistent. There are myriad opportunities to design and evaluate interventions based on cognitive-staging principles. Understanding the ways in which youth at different cognitive stages (e.g., the concrete operational period versus the formal operational period) process health information is critical to facilitating retention and application of information that provides the cognitive basis for behavior change.

The assumption has been made that the stages of cognitive development occur relatively uniformly across diverse populations of youth. This assumption may be incorrect. There is some evidence that females attain the concrete operational stage earlier than males (Simmons & Blyth, 1987). Group differences in the tempo of cognitive development and the effect of differences in tempo on responses from peers or adults are areas that merit further empirical study. It is possible that the timing of cognitive development, like pubertal development, is highly variable. Further, late as opposed to early movement into the formal operations stage may have a profound influence on adolescent adjustment. A frontier yet to be explored is the interactive effects of the timing of cognitive and pubertal development on health beliefs and behaviors.

More attention is needed on developing interventions that help families, schools, and communities structure youth activities to teach health promotion lessons. The relationship between sociocultural context and individual cognitive development should be further investigated insofar as different communities produce variations in the specific genetic and social resources of children and adolescents. In addition, designing and testing culturally sensitive interventions responsive to valued goals and skills in a given social context are essential to developing effective health promotion interventions for diverse populations.

The Meaning of Health. Several studies suggest that age, gender, and cultural differences in the meaning or cognitive structure of health merit exploration within a developmental framework (Dielman, Leech, Becker, Rosenstock, & Horvath, 1980; Mickalide, 1986). Older children and adolescents may exhibit significant differences in their conceptualization of health, as may males and females and members of different cultural and socioeconomic groups (Alexander, 1989). Unless differences in the meaning of health among groups over time are identified, generic definitions of health may be inappropriately ascribed to all youth, and subsequent interventions to promote healthy lifestyles will be ineffectual. Particularly critical is the need for longitudinal research to describe how biological, emotional, and social transitions interact to affect cognitive representations of health. Such research is necessary for the design of successful health promotion interventions that respond to the wide range of issues and concerns of youth as they mature into adulthood.

Self-Esteem. The research literature is replete with studies focused on self-esteem in childhood and adolescence. Ambiguous definitions of the construct, inadequate measuring instruments, and lack of theory have plagued these studies (Harter, 1990). During the past decade, however, a consensus has emerged which suggests that self-esteem is not a unitary, unidimensional construct. Specifically, recent data suggest that self-esteem, particularly during the school-age and adolescent years, is not well captured by measures that combine and summarize evaluations across diverse domains (e.g., scholastic competence, social acceptance, or appearance). Since school-age children and adolescents are capable of evaluating these domains of the self (or self-concept) and possess a global sense of self-worth, this multidimensional approach is, and will continue to be, more informative (Harter, 1990). Further, recent attention has shifted to the determinants of self-esteem and self-concept, rather than its correlates.

Collectively, data supporting the conceptualization and measurement of self-esteem as a multidimensional construct (combined with a refocus on determinants) have implications for future research linking self and health behavior. Although the relationship of self-esteem and other dimensions of self to health behavior has been demonstrated, minimal data are available on the interrelationships of these variables across developmental stages in diverse populations of youth.

Emotional Transitions

Recent findings that some adolescents proceed through seemingly difficult transitions with no evidence of emotional dysfunction, whereas others experience significant problems of adjustment, suggest that individual differences in emotionality among adolescents may be a critical area for future research. Not yet understood is how emotions and emotional transitions contribute to increases in adjustment problems, psychiatric disorders, delinquent and other antisocial behavior, substance use, and health problems.

Fostering emotional development can be accomplished only by considering contextual influences as well as individual psychological factors. The contexts in which older children and adolescents develop may play a significant role in shaping how youth experience emotion. Experiences affect emotionality, and experiences with families, peers, and communities may influence the ways in which emotions are expressed. Interventions that help youth find healthy ways of experiencing positive emotion, coping with negative emotion, and resolving conflict could be an important part of efforts to promote their health and well-being and may contribute to reducing the growing problem of youth violence. Studies are needed to examine the relationships between transitions during late childhood and adolescence, emotionality, and healthy lifestyles and behaviors of youth.

Social Transitions

Family Transitions. The potential for growth and health promotion offered by normative family transitions (i.e., asserting independence) during late childhood and adolescence is not well understood. Tragically, normative family transitions may actually increase the vulnerability of youth to negative health outcomes, rather than foster improved health. Research is needed to explore factors that determine the differential impact of normative family transitions on youth of various genders, temperaments, and developmental maturity. Another topic for investigation is the effect of normative transitions of youth on family members, particularly parents. There is a crucial need for interventions that help youth and parents benefit from normative family transitions. Further, the development of family and peer networks to support healthy transitions merits empirical study, since research seems to suggest that positive family and peer relationships have a synergistic effect.

Older children and adolescents have a natural tendency to experiment as they move toward greater independence from and interdependence with their families and other significant adults. Studies are needed to develop and test family- and community-based interventions that take advantage of this predisposition toward experimentation and to help youth learn and maintain health-promoting behaviors. Another important research area is the exploration of family interventions designed to enhance family well-being and minimize the incidence of non-normative family transitions that often have detrimental effects on family health. The effects of non-normative transitions in combination with normative transitions on health attitudes and behaviors of youth are not well understood. When non-normative changes cannot be prevented through building family strengths, their detrimental effects need to be minimized and their growth potential maximized with developmentally appropriate interventions. Designing and testing interventions in family, school, and community settings to achieve this goal offer further research challenges.

Little is known about the healthy adaptation of older children and adolescents to parental divorce. Research is needed to identify factors in youth associated with psychological resilience and successful coping with divorce to provide a basis for designing interventions that help youth sustain and enhance mental and physical health during this potentially high-stress transition (Grych & Fincham, 1992). Research addressing the mechanisms mediating the effects of divorce on older children and adolescents also is needed to determine the commonalities between mediators of divorce and other non-normative transitions and between non-normative and normative transitions. Interventions that increase older children's and adolescents' ability to cope with various types of transitions throughout their lifespan are likely to be the most effective and economical.

Peer Group Transitions. Peer groups are important sources of information for youth on interpersonal relationships, coping skills, and problem-solving approaches, including conflict resolution. Little is known, however, about how older children and adolescents model or teach each other these life skills, particularly in health and health promotion. An important area of investigation is the effect of transitions in peer groups on peer modeling, peer support, and peer teaching processes. Such studies will establish a stronger foundation for designing effective, peer-based interventions.

Research indicates that skills acquired in handling family transitions transfer to strategies for dealing with peer transitions. An area meriting greater attention is the development of interventions to assist youth in learning life skills that help them adjust to change within the family context. Ways of extending contacts with family members and other adults to promote health, even within a peer-intensive context, also is a promising direction for research.

Peer support and peer-intensive strategies to prevent health-compromising behaviors and to encourage health-promoting behaviors are particularly important for youth alienated from their families. These youth often seek warmth, love, and support from peers who may be experiencing similar loneliness and alienation. Critically needed are studies of intraindividual and interpersonal processes that foster resilience and health-promoting life goals for isolated youth through peer systems.

School Transitions. Although considerable research has focused on some aspects of how school transitions affect adolescents, comparatively little is known about other aspects. Few investigations have contrasted how members of various racial and ethnic minority groups adjust to this transition (Simmons, Black, & Zhou, 1991). As a greater number of minority adolescents are included in research studies, analyzing these contrasts will become increasingly feasible. Such analyses are essential for enhancing the ability of health professionals to design and implement interventions that help diverse populations of vulnerable youth cope successfully with school transitions.

In addition, there is much to be learned about the effect of school transitions on health perceptions and behavior. An important research area is the examination of changes in views of health and well-being and health-related attitudes, values, beliefs, and behaviors that occur before and immediately after transitions in school environments. For example, some research indicates that elementary school students view puberty differently from junior high students, whose average level of development is more advanced (Faust, 1960). Understanding how normative attitudes, values, beliefs, and behaviors shift during school transitions and how they affect health perceptions and beliefs may help establish a stronger foundation for designing interventions that both anticipate and capitalize on the positive potential of these normative changes.

Workplace Transitions. At the cutting edge of adolescent health research is the exploration of social, psychological, and health consequences associated with transitions in the workplace. Of special interest are the positive and negative effects of work on the experience of adolescence and on adolescent health, especially for youth in high school. Related topics of investigation include the influence of positive and negative work role models; the impact of work-related fatigue and stress on adolescent lifestyles, resistance to disease, and emotional well-being; and the use of the workplace as a setting for health promotion.

Recommendations

Genetic and Environmental Influences on Development

- Investigate the genetic and environmental influences on biobehavioral correlates of health and on continuity and change in health-related developmental processes in late childhood and adolescence.

Biological Transitions

Endocrine Physiological Changes

- Design longitudinal studies that examine the effects of experiences and behavior on pubertal timing and tempo.

- Examine the effects of increases in puberty-related hormones on health-promoting attitudes, motivations, and behaviors.

Effects of Hormones on Behavior

- Investigate the interface between biological transitions (puberty) and cognitive, emotional, and social transitions in late childhood and adolescence. Examine the effects of the timing and tempo of puberty on health and cognitive, emotional, and social development.

Cognitive Transitions

Stages of Cognitive Development

- Examine the effects of changes in cognitive processing (including the development of metacognition) and of contextual influences on practical decision-making involving health-compromising and health-promoting behaviors in late childhood and adolescence.

- Explore gender and other population differences in the timing and tempo of cognitive development and the effects of differences in timing and tempo on health beliefs and behaviors.

- Investigate the interactive effects of cognitive abilities and pubertal development on retention and application of health information and on psychological and social adjustment in late childhood and adolescence.

- Develop valid and reliable measures for assessing stage of cognitive development as part of client assessment for youth in health care settings. Test the effectiveness of health promotion interventions tailored to the stages of cognitive development.

The Meaning of Health

- Design longitudinal studies that use a biopsychosocial framework to assess developmental changes in health beliefs and behaviors throughout the adolescent years, focusing on the effects of biological, cognitive, emotional, and social transitions.

- Explore the origins of health cognitions and health-related motivation and the relationship between meanings of health and illness across stages of cognitive development. Assess gender, cultural, and ethnic similarities and differences in the meaning of health among older children and adolescents.

Self-Esteem

- Investigate the determinants of continuity and change in self-esteem as a multidimensional construct, and explore the interrelationships among dimensions of self-esteem and health behavior in diverse populations of children and adolescents.

Emotional Transitions

- Examine emotions as mediators and moderators of the relationships between biological transitions and health, focusing especially on how puberty-related, neurobiological transitions affect emotions and health.

- Determine how emotions enhance or impede healthy or unhealthy behavior, with particular emphasis on the role of positive emotions in avoiding unhealthy, risk-taking behavior. Assess differences in emotions related to enhancing health-promoting behavior between and within gender and ethnic subgroups.

- Design studies to explain how emotions preceding the biological, cognitive, and social transitions of late childhood and adolescence influence the ways in which youth cope with these changes. Examine the influence of peer, family, and community contexts on emotional stability and change across biological, cognitive, and social transitions.

Social Transitions

Family Transitions

- Conduct multicultural studies to contrast and compare responses of youth to stressful and potentially stressful family transitions (such as divorce, unemployment, and changes in residence or schools), and to determine how such transitions affect health and cognitive, emotional, and social development. Identify the coping strategies and environmental contexts of youth who successfully deal with these transitions.

- Develop and test model programs that promote experimentation with healthy, alternative lifestyles at critical transition points as youth become increasingly independent and responsible for self. Identify intervention strategies that best prepare youth to adjust to, and utilize the growth potential of, stressful and potentially stressful family transitions.

- Investigate the development of adaptive and maladaptive risk-taking behaviors and their relationship to family and cultural norms, socioeconomic status, age, developmental differences, individual and social expectations, the meaning of "risk behavior" to youth, and the covariance among risk behaviors and individual developmental trajectories.

Peer Group Transitions

- Explore the health and nonhealth reasons that youth and their peers engage in health-compromising and health-promoting behaviors, and identify the multiple mechanisms through which peers influence health-related behaviors.

- Develop and test intervention strategies that build multidimensional peer and family support for healthful lifestyles.

School Transitions

- Examine differences and similarities in the effect of school transitions on health attitudes, motivations, and behaviors of youth from different economic, racial, and ethnic backgrounds. Investigate patterns of change across school transitions in specific domains of self-perception, such as social and physical competence.

- Test the effectiveness of health promotion interventions prior to and after school transitions and associated changes in values, beliefs, and behavioral norms. Explore the balance of interventions needed to optimally promote healthy development.

Workplace Transitions

- Explore the effects of early work experiences on the health and behavior of adolescents from various economic, racial, and ethnic backgrounds. Investigate the influence of work experience on adolescent psychosocial development.

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2

APPROACHES FOR DESIGNING AND IMPLEMENTING INTERVENTIONS

Transitions in late childhood and adolescence offer critical opportunities for intervening to promote health for youth. This chapter begins with an examination of the concept and principles of health promotion and a review of the current theoretical bases for health promotion and empowerment among youth. The following topics are then explored:

- Types and features of successful interventions
- Effects of self- and health-related perceptions on the health behavior of older children and adolescents
- Effects of family and peer relationships on health perceptions and behavior
- Perceptions of nurses and other service providers regarding the health needs and concerns of youth
- Cultural relevance of health promotion research and interventions.

The review of the effects of youth's self-perceptions and health-related perceptions on health behavior is based in large part on the work of Millstein, Petersen, and Nightingale (1993).

State of the Science

Concept and Principles of Health Promotion

Principles developed by the World Health Organization (WHO) articulate universal assumptions that guide the direction of health promotion globally. WHO defines health as the combined physical, cognitive, emotional, and social resources that an individual can dedicate to accomplishing goals, meeting needs, and adapting in positive ways to the changing demands of the environment. Health is a means to a full life, not an end in itself. Health promotion is the process of empowering people to gain more control over their health and become healthier.

The WHO principles are as follows:

1. Health promotion involves the population as a whole in the context of their everyday life, rather than focusing on people at risk for specific diseases.
2. Health promotion is directed toward action on the determinants or causes of health.
3. Health promotion combines diverse, but complementary, methods or approaches, including communication, education, legislation, fiscal measures, organizational change, community development, and spontaneous local activities against health hazards.
4. Health promotion aims particularly at effective and concrete public participation.
5. Health professionals—particularly in primary health care—have an important role in nurturing and enabling health promotion (WHO, 1984).

Effective health promotion research and interventions address the following basic areas of need:

- *Opportunities for health*—Public and private policies should strive to give everyone an equal opportunity to be healthy and become healthier, and the goal of health services should be to foster and maintain health.
- *An environment conducive to health*—A healthy home life and a healthy work life are crucial to personal health. To facilitate the development and maintenance of positive conditions at home and at work, the impact of technological, cultural, and economic influences across the lifespan must be understood and

appropriately addressed in health promotion policies and programs.

- *Social networks and social supports*—Everyone needs equal access to opportunities to form positive social relationships and support systems, which have been acknowledged as a key factor in developing health-promoting values and behaviors.

- *Positive health behavior and appropriate coping strategies*—Everyone needs an equal opportunity to learn these building blocks to a healthy lifestyle.

- *Information and education*—Everyone should have access to developmentally appropriate and culturally sensitive information about health-related issues so that they can make informed decisions about their health (adapted from WHO, 1984).

According to WHO (1984, 1989), health promotion for older children and adolescents should focus on the following core issues:

- Worries and concerns of youth
- Utilization of available services
- Body image
- Nutrition and eating behavior
- Sexual behavior and orientation
- Mental health
- Risk-taking behaviors
- School performance and conduct
- Antisocial behavior
- Substance use
- Relationships with family, friends, and other adults.

The Panel recognizes that other critical issues include poverty, racism, and access to health services.

The goal of health promotion for older children and adolescents is to foster optimal well-being for all youth in ways that are developmentally appropriate and culturally relevant and that address the core issues above. Optimal well-being encompasses optimal physiological, cognitive, emotional, and social functioning, and includes attitudes, skills, and knowledge that promote self-esteem, developmentally appropriate self-care competence, and healthy support-seeking. Five basic types of support are necessary to foster optimal well-being. Older children and adolescents need access to:

1. *Opportunities* for activities that help them acquire a sense of meaning and skills that foster developmentally and culturally appropriate self-care competence.

2. *Caring and supportive people*, including nurses and other health care providers, who have the understanding, skills, and empathy to assist them in successfully negotiating stressors and transitions.

3. *Information and knowledge* that are developmentally and culturally appropriate about health issues and prevention strategies, which are a necessary but not sufficient part of health promotion.

4. *Positive role models*, including nurses and other health care providers, who are able to show youth in believable, attainable, and developmentally and culturally appropriate ways what healthy attitudes and behaviors look like and to be examples that youth want to emulate.

5. *A variety of health promotion, prevention, and early intervention services* that include medical services and social, educational, and other support services.

Healthy People 2000: National Health Promotion and Disease Prevention Objectives for the Year 2000 (U.S. Department of Health and Human Services, 1990) is the Nation's most prominent statement on health objectives for the U.S. population. This report defines health status goals for adolescents in eight categories: physical activity and fitness, nutrition, tobacco, alcohol and other drugs, family planning, mental health and mental disorders, violent and abusive behavior, and educational and community-based programs.

The articulation of health promotion concepts and principles has not been easy. Problems have included (1) Limited conceptualizations of health promotion, (2) changing definitions, and (3) lack of consensus on the similarities and differences between health promotion and disease prevention.

The definition of health promotion provided by the U.S. Office of Technology Assessment (1991) reflects these difficulties:

> Health promotion: Most broadly, a philosophy of health or a set of activities that takes as its aim the promotion of health, not just the prevention of disease. Sometimes narrowly defined as the set of prevention efforts aimed at changing individual behavior (p. I-168).

Although definitional issues are critical in health promotion research, efforts to develop and assess effective health promotion interventions face many more daunting challenges. Health promotion is a complex field that has captured the attention of nurse scientists and practitioners, other health care providers, health educators, and behavioral and social scientists worldwide. As a result, a substantial knowledge base has emerged.

Theoretical Bases for Health Promotion Among Youth

Theoretical Models Applied to Health Behavior

Health promotion research fits well within nursing science, which stresses the formulation of theory and practice to assist individuals in learning and maintaining healthy behaviors by increasing their motivation and self-responsibility (Fleury, 1992). According to Hill and Smith (1990), health promotion interventions incorporate elements and processes from a range of disciplines and theoretical models, including teaching/learning theory, operant conditioning/reinforcement theory, Gestalt learning/cognitive field theory, humanistic learning theory, social learning theory, behavior intervention model, communication theory, psychoanalytic theory, family systems model, social systems model, developmental theories, stress/adaptation theory, biological theory, and quantum physics theory.

The major theories used to explain and predict health behaviors are outlined below.

- *Cognitive theory*, also called "value expectancy theory," maintains that behavior is the product of the subjective value of an outcome and the subjective likelihood that a certain behavior will achieve that outcome. Motivation is determined, in part, by the value of the outcome, since achieving the outcome positively reinforces the contingent behavior.

- The *health belief model* is based on Lewin and associates' (Lewin, Dembo, Festinger, & Sears, 1944) level of aspiration theory. The model was developed in the early 1950s by Hochbaun, Leventhal, Kegeles, and Rosenstock (Rosentock, 1974) to explain the effects of subjective beliefs on health behaviors. It combines psychological and behavioral theories of decision-making to explain and predict individuals' decisions about health behavior. This framework proposes that motivation to engage in health behaviors depends on five factors: perceived susceptibility to the health threat, perceived severity of the health threat, perceived benefit of the health action, perceived obstacles to the health action, and perceived likelihood of adherence to the health action (Fleury, 1992; Manning & Balson, 1989).

- The *health promotion model*, presented by Pender (1987), is based on social cognitive theory, which maintains that behavior is the product of the interaction of cognition, affect, actions, and environmental events. Health-promoting actions seek to sustain or increase personal well-being and self-actualization (Pender, 1984). Health-promoting actions are determined by cognitive/perceptual factors, including importance of health, perceived control of health, definition of health, perceptions of status of health, self-efficacy, and perceived benefits of and barriers to health-promoting behaviors. Modifying circumstances include demographic, biological, interpersonal, situational, and behavioral factors. Internal and external cues trigger health-promoting actions.

- The *theory of reasoned action*, presented by Ajzen and Fishbein (1980), explains behavior as the result of intention, which arises from beliefs shaped by personal factors (attitude toward the behavior, comprised of estimated likelihood of the behavior succeeding and value of the outcome) and social factors (perceived norms or expectations associated with the behavior and motivation to comply). Personal and social factors are influenced by personality and sociocultural variables.

- The *theory of planned behavior*, a more recent framework proposed by Ajzen and colleagues (Ajzen, 1985; Ajzen & Timko, 1983), adds perceived control to the theory of reasoned action (i.e., perceived ease or difficulty of achieving the outcome) as another factor influencing intention.

- *Self-efficacy theory* is derived from Bandura's (1986) social cognitive theory. Self-efficacy is the belief that one can successfully perform behavior required to produce desired outcomes. In this model, perceptions influence behavior, motivation, thought patterns, and emotional reactions to perceived threats. Expectations concerning likely outcomes of the action and efficacy or ability to take action that will produce the desired outcomes can be significant determinants of behavior. Expectations about self-efficacy are formed based on (1) actual experience performing the behavior, (2) seeing the behavior modeled by someone else, (3) verbal persuasion, and (4) physiological states (Bandura, 1977).

- *Models for community involvement*, described by Bracht and Tsouros (1990) and Blyth and Roehlkepartain (1993), provide a conceptual basis for, and address the strategic implications of, community involvement in health promotion. These models stress the role played by context and community in influencing attitudes and behaviors. To effect lasting change, interventions must focus on modifying not only the behavior of individuals and groups of individuals, but also the social context. The environment must provide healthy alternatives to health-compromising actions, supporting rather than hindering positive choices and behaviors. Different communities have different health promotion needs and may respond to different messages and strategies, depending on racial and ethnic composition, setting (urban, inner city, rural), and other variables.

  Some research has focused on neighborhood and community factors that can be protective of families or place them at increased risk for negative outcomes. For example, studies controlling for socioeconomic status indicate that youth are more likely to pursue healthier lifestyles in some communities than in others (Blyth & Roehlkepartain, 1993). Community-based interventions are discussed in more detail in chapter 3, Strategies and Settings for Nursing Interventions.

- *Traditional models of primary, secondary, and tertiary health care* also have health promotion applications. *Primary health promotion* focuses on the most critical problem: promoting healthy behaviors before the onset of negative health outcomes from health-compromising behaviors (e.g., preventing early sexual intercourse in adolescents and developing of healthy sexual behaviors). *Secondary health promotion* focuses on preventing negative health outcomes from a health-compromising behavior after the initiation of that behavior (e.g., preventing negative health outcomes associated with sexual activity in sexually active adolescents). *Tertiary health promotion* focuses on preventing additional, negative health outcomes once an individual has experienced at least one negative outcome from a particular behavior (e.g., preventing further negative outcomes in individuals who already have experienced a pregnancy or sexually transmitted disease) (Irwin & Shafer, 1992).

  The three levels of health promotion or prevention can occur in all clinical settings, with an emphasis on primary promotion in community environments, such as schools, religious organizations, and clinics, and an emphasis on secondary and tertiary promotion in clinical offices and hospital-based settings. As clinicians assume a greater role in primary health promotion, anticipatory guidance may want to focus more heavily on health promotion (Irwin & Shafer, 1992).

These frameworks have been used to explain and predict health behaviors with varying degrees of success.

Health Empowerment Theories for Youth

Empowerment entails providing individuals with the capacity (skills, knowledge, and positive attitudes), authority (permission), and opportunity (choices) to take positive action on their own behalf and in their context (Igoe, 1991). In health, empowerment can be defined as messages, services, processes, structures, and alternatives that give older children and adolescents the capacity, authority, and opportunities they need to learn health-promoting attitudes and behavior patterns. *Capacity* takes the form of positive attitudes, knowledge, and skills that promote the development of healthy, developmentally appropriate autonomy, self-responsibility, and support seeking. *Authority* and *opportunity* come from (1) adults inside and outside the family, including nurses and other youth-serving professionals who foster such attitudes and behaviors in youth and model them themselves, and (2) communities that make appropriate services, resources, and options available in ways that empower youth, especially high-risk youth.

The empowerment-related attitudes and behaviors examined in studies of adolescents have focused largely on an adolescent's ability to adhere to a prescribed therapy or lifestyle practice after receiving instruction and participating in a learning activity. Lewis and Igoe have attempted to investigate the construct of control from a different viewpoint that emphasizes building decision-making skills (Lewis & Lewis, 1990) and constructing a specific set of social norms that are expected to produce empowerment (Igoe, 1991).

All older children and adolescents are at risk of adopting health-compromising behavior patterns and they need support to cope with stressors and develop healthy lifestyles. Of special concern is the empowerment of underserved and disenfranchised young people whom studies show are most at risk for negative health outcomes. These youth include individuals who are minorities; poor; experiencing homelessness, family neglect and violence, and community violence; gay or lesbian; immigrants; or have disabilities and chronic illness.

The *empowerment model* of Wuest and Stern identifies a series of stages through which families evolve as they become empowered by learning to manage their health problems. The model is based on Mintzberg's organizational model of management and Pratt's "empowered family model." This model is noteworthy, given findings which indicate that the health empowerment of youth is influenced by factors that include parental involvement, childrearing practices, and the family's consumer skills (Igoe, 1991).

The *work-needs assessment model* of McClelland (1961) may be relevant to research on health empowerment for youth. Originally developed to explain worker productivity in industry, it presents three constructs that have been incorporated in health empowerment interventions: (1) a sense of affiliation, (2) a sense of control, and (3) a sense of achievement (Igoe, 1991).

Perry (1984), Hawkins and Weis (1985), and Cox (1982) also provide theoretical perspectives with self-efficacy and other empowerment-related constructs relevant to adolescent health. The *social influence model* combines health promotion and empowerment elements and uses an epidemiological approach to intervention design derived from a variety of psychosocial theories, including Bandura's (1986) framework.

Perry's multivariate framework is based on social learning theory and takes into account environmental, personality, and behavioral attributes. The model identifies four domains of health: (1) physical health (physical-psychological functioning), (2) psychological health (subjective sense of well-being), (3) social health (role fulfillment and social effectiveness), and (4) personal health (realization of individual potential). Health promotion involves efforts to improve well-being in all four domains. Positive health behavior is the result of exposure to health-promoting behaviors that act as a deterrent to health-compromising actions if the proper internal and external factors are present (Perry, 1984). Studies of interventions derived from Perry's framework are few and virtually untested quantitatively in adolescents. Nevertheless, the results of these studies are promising, and Perry's conceptualization warrants further testing. Many other social influence models have included empowerment components and have been successful in preventing smoking in older children and adolescents (Botvin, Dusenbury, Baker, James-Ortiz, Botvin, & Kerner, 1992).

Hawkins' *social development model* has provided a theoretical framework for investigations of the social behavior of adolescents which focus on designing interventions to reduce delinquency and increase safe sex practices (Hawkins & Weis, 1985). The model implicitly empowers youth while socializing them to new behavior patterns. Hawkins' conceptualization, although praised by a number of health promotion specialists, still needs to be tested systematically and rigorously. Cox' (1982) *interaction model* of client health behaviors also offers a conceptualization for adolescent health promotion that incorporates empowerment concepts such as decisional control.

Other nursing theorists have developed frameworks which, while not focusing specifically on the health behavior of adolescents, include elements relevant to empowerment such as self-care attitudes and skills, education, and stress management. These frameworks include Orem's (1985) self-care model, Hall's (1966) care-core-cure model, Roy and Roberts' (1981) adaptation model, Blattner's (1981) holistic model, and Watson's (1985) theory of human care.

Interventions: Types and Features

Initial and ongoing health promotion interventions generally have been classified as adopting a public health or medical approach. The public health model refers to population-based interventions. The medical approach, in contrast, is aimed at individuals at high risk for health-compromising behaviors and/or disease.

Health promotion interventions for older children and adolescents typically belong to one of the following categories:

- Single-problem interventions that focus on a single health behavior
- Multidimensional interventions that address a variety of health behaviors with comprehensive strategies
- Macro-level interventions designed for the population at large
- Micro-level interventions designed for individuals at high risk for health-compromising behaviors or disease.

Health education often has been the main approach used in health promotion programs for youth. The U.S. Office of Technology Assessment (1991) outlines criteria for health education proposed by the National Commission on the Role of the School and Community in Improving Adolescent Health, an initiative of the National Association of the State Boards of Education and the American Medical Association. According to the Commission, effective health education for youth:

- Provides honest, relevant information on disease and accident prevention, family life and sex education, drug and alcohol abuse, violence, mental health, and nutrition.
- Teaches skills and strategies needed to make wise decisions, develop positive values, generate alternatives, deal with group pressure, work cooperatively, and avoid fights—skills that are better learned through role-playing and other small group participatory activities than through lectures.
- Includes participation in physical activity programs that foster lifelong exercise habits.
- Begins before students are pressured to experiment with risky behaviors and continues throughout adolescence. It should begin in kindergarten and continue in a planned, sequential manner through grade 12 (p. I-153).

Marsh (1992) and others have identified relapse risk management as a necessary part of health promotion programs. An effective risk management component includes a (1) mechanism for providing emotional support, (2) data collection system for monitoring relapse episodes, and (3) system for teaching clients self-management strategies that help them cope successfully in situations that could trigger a relapse.

Assessment of stress responses to life events also is an important component of health promotion initiatives for older children and adolescents. According to Grey and Hayman (1987), a variety of measurement methods have been used, but youth's interpretation of what constitutes a stressful event frequently is overlooked in designing measurement tools.

Schools continue to be the primary locus of health promotion and disease prevention programs for students. In the 1970s, the first school-based student health centers were established to provide primary health care to students (Honig, 1990). These centers offer a variety of health promotion interventions, including health education. Most school-wide health promotion interventions include a combination of the four educational strategies identified above and focus on helping students develop habits that will help to prevent the onset of cardiovascular disease later in life. Unfortunately, school-based programs often are inaccessible to youth who may be at highest risk (i.e., those who are frequently absent from school or have dropped out).

Recent works by Schorr and Schorr (1988) and Dryfoos (1990) summarize attributes of programs that effectively promote the health and well-being of youth, particularly those at greatest risk. These programs are flexible, intensive, comprehensive, accessible, and culturally and developmentally appropriate, and the services are delivered by caring, respectful professionals. In addition, successful interventions:

- Address antecedents of problems.
- Offer early assistance before health-compromising behaviors override health-promoting behaviors.
- Foster the development of basic skills youth need to become competent adults.
- Incorporate a range of strategies that focus on promoting healthy behaviors.
- Allow full participation of parents and adolescents in program development and implementation.
- Involve adolescents directly in the design of health services.
- Require competent, enthusiastic leaders who relate well to adolescents (Rogers, 1991).
- Use innovative strategies that capture the attention of adolescents, particularly those academically at risk. Newer approaches have utilized theater, mime, storytelling, and interactive videos to enhance adolescents' experience of risk behavior and associated consequences, give opportunities for practicing refusal skills, and help youth identify potential social influences on behavior.

To meet the needs of youth, the U.S. Office of Technology Assessment (1991) recommends an approach that integrates a "broad range of health and related services and policies" driven by a "basic guiding principle of providing a prolonged protective and appropriately supportive environment for adolescents" (p. I-45). Developmentally appropriate initiatives recognize not only that youth differ developmentally from adults, but also that younger and older youth within the 8- to 18-year age range differ developmentally from each other. Interventions must be tailored to the level of cognitive, emotional, and social development of the young people whose attitudes and behaviors the interventions seek to influence.

Millstein (1993) suggests that health promotion interventions should:

- Incorporate an understanding of adolescents' motivations, concerns, and priorities, rather than be driven solely by adult perspectives
- Use short-term goals meaningful to adolescents (e.g., being accepted by peers) to achieve longer-term goals important to adults (e.g., avoiding substance use)
- Address the roots of health-compromising behaviors (e.g., lack of life skills or emotional support)
- Take into account adolescents' perceptions of the advantages and disadvantages of different sources (e.g., health professionals and teachers), methods (e.g., individual counseling, groups, or anonymous viewing of videotapes), and settings (e.g., classrooms and adolescent health centers) for receiving various types of health information
- Address adolescents' perceived obstacles to implementing health information
- Consider making some initiatives gender-specific, given the difference in maturational rates between females and males
- Evaluate the extent to which adolescents actually receive intended health messages.

When implemented at several levels simultaneously for maximum impact, effective interventions:

- Strengthen individual knowledge and skills
- Promote community education
- Educate providers
- Foster coalitions and networks
- Change organizational practices
- Influence policy and legislation.

Effects of Self- and Health-Related Perceptions and Interpersonal Relationships on Health Behavior

How youth perceive themselves and their health, how they cope, and how they perceive their coping ability are critical considerations in developing and assessing health promotion interventions that empower older children and adolescents. Of special interest are the effects on health and health behavior of self- and health-related perceptions of youth, as well as relationships with families, peers, nurses and other health service providers, communities, and organizations.

Youth Perceptions

Self-perceptions and health-related perceptions play a significant role in motivation to engage in health behaviors. Several relationships between personality and health-related behavioral outcomes have been suggested by Friedman and Booth-Kewley (1987), with elaboration by Rodin and Salovey (1989) and, in the health promotion field, by Pender (1987) and Perry (1984). Personality may (a) influence health by motivating health behaviors, and (b) be related to health through other internal and/or external variables.

Rodin and Salovey (1989) identify two central issues associated with the examination of links between personality traits and health behavior. First, many methodologists have argued for a taxonomy of traits for studying health and disease because of problems with discriminant validity that arise due to the lack of a standard framework for identifying traits. No such taxonomy exists. Second, a variety of purportedly different traits may converge on the same underlying personality construct (e.g., resiliency, self-efficacy, learned resourcefulness, and internal locus of control). These issues cloud health promotion investigations and weaken their conclusions.

Researchers have approached the study of adolescent coping ability in several ways, including investigating the relationship between coping styles, components of personality, and psychological adjustment, and focusing on expectancies (social influences) of others (parents, teachers) as the critical mediator. Some investigators argue that attributions are a determinant of expectancies, whereas others believe the reverse is true. Other variables such as self-deception or difficulty with emotional expression, which are more indicative of the absence of an attribute, have caught the attention of researchers. In addition, coping resources are sometimes distinguished from coping responses in studies of how individuals adapt to life circumstances (Rodin & Salovey, 1989).

Additional areas of study include mental representations of health and healthy lifestyle behaviors, risk and vulnerability, and control or empowerment. Control or perceived mastery over one's circumstances, according to Rodin and Salovey (1989), is a basic human motivation, and their work with elderly persons suggests that the presence or absence of a sense of control has a profound influence on an individual's emotional, cognitive, and physical well-being.

Health-related perceptions encompass attitudes and values about health, health concerns, perceived vulnerability to health problems and health options, and self-efficacy. Little is known about the perspectives of youth on health issues (U.S. Office of Technology Assessment, 1991). Beliefs that may be held by many youth include the following: (a) Society is ambivalent about adolescent sexuality, substance use, and other risk-taking behaviors such as dangerous driving; (b) health care providers do not address issues that adolescents care about; and (c) many adults have a largely negative attitude toward adolescents. Beliefs associated with public attitudes toward adolescents include the following: (a) Adolescence is just a period of transition, rather than an important developmental period with value in its own right, and (b) adolescence is intrinsically and intractably problematic (U.S. Office of Technology Assessment, 1991).

Most research on health-related perceptions has focused primarily on children's understanding of illness (Millstein & Irwin, 1987). Studies have monitored the changes that occur over time in children's understanding of health and illness, and investigators have analyzed these changes in terms of Piagetian theory (Kalnins & Love, 1982; Natapoff, 1982). Studies also have investigated the link between children's perceived vulnerability to illness or health problems and health-related behavior (Kalnins & Love, 1982).

Youth, like adults, perceive health as more than the absence of illness (Eiser, Patterson, & Eiser, 1983; Millstein, Adler, & Irwin, 1981; Millstein & Irwin, 1987; Radius, Dillman, Becker, Rosenstock, & Horvath, 1980). Health means functioning optimally physically, mentally, emotionally, socially (in relationships and roles), and personally (reaching one's potential). Adolescents and adults may show similar tendencies to minimize symptoms related to sensitive issues such as sexual behavior and substance use (Millstein & Litt, 1990). Adolescents also may exaggerate symptoms due to the greater self-consciousness that is characteristic of this developmental period, and introspective adolescents, like introspective adults, may report more symptoms. Physicians and parents perceive adolescents as healthier than do adolescents themselves; reasons could include the greater self-consciousness of adolescents and differences in adult and adolescent definitions of health (Millstein, 1993).

Most adolescents identify health hazards as related to their behavior and their environment (Brunswick, 1969; Millstein & Irwin, 1985). Adolescents living in different contexts are likely to raise different health concerns. For example, youth in neighborhoods with high rates of violence and deprivation tend to report issues that reflect these factors, and minority youth tend to report concerns about discrimination more often than white youth.

In general, adolescents are concerned about their appearance (e.g., weight and acne), emotional health, interpersonal relationships, school and career, and physical health. In addition, they report being aware of issues related to substance use, sexual behavior, birth control, and sexually transmitted diseases. Issues that rank high include concerns about school, dental health, acne, interpersonal relationships, and mental health; issues related to substance use, sexual behavior, nutrition, and exercise generally rank lower. Adolescents may rank their concerns about substance use and sexuality lower than other concerns because these issues are emotionally charged and therefore harder to talk about; discussing issues related to emotional distress also may be difficult for adolescents. Adolescents probably show the same tendency as adults to minimize potentially negative effects of their behavior. In addition, adolescents expect, sometimes mistakenly, that some behaviors will become less risky as they get older (Millstein & Irwin, 1985).

Adolescents and adults both give subjective descriptions of mental health, such as feeling "contented" and "happy." Few studies have investigated adolescents' definitions of stressful events, although adolescents typically are asked to respond to lists of events defined as stressful by adult researchers (Millstein, 1993). In addition, different studies tend to use different lists of concerns, making cross-study comparisons difficult (Millstein, 1993).

Millstein (1993) notes that there are differences and similarities in adolescents' health concerns which reflect developmental status, gender, race, ethnicity, and socioeconomic status. Issues in early adolescence (11 to 13 years) include pubertal processes, comparison with others, perception by the opposite sex, shyness, smoking, drug use, and independence (Byler, Lewis, & Totman, 1969; Levenson, Morrow, Johnson, & Pfefferbaum, 1983; Millstein, Irwin, Adler, Cohn, & Kegeles, 1992; Porteus, 1979). Prominent issues in middle adolescence (14 to 15 years) include peer group acceptance, friendships, self-esteem, and appearance (especially for females) (Eme, Maisiak, & Goodale, 1979; University of Minnesota, 1989; Violato & Holden, 1988). In later adolescence, youth are more concerned about school and career, especially if they expect to go to college, as well as independence and, particularly among females, emotional health and birth control (Eme, Maisiak, & Goodale, 1979; Parcel, Nader, & Meyer, 1977; Violato & Holden, 1988). Developmental status also affects sources of stress, with family relationships being a greater stressor in early adolescence, peer relationships in middle adolescence, and academic achievement in late adolescence (Millstein, 1993).

Differences in the number and nature of health concerns identified by male and female adolescents have been studied extensively (Millstein, 1993). Girls report more health concerns and health problems than boys (Alexander, 1989; Brunswick & Josephson, 1972; Feldman, Hodgson, Corber, & Quinn, 1986; Parcel, Nader, & Meyer, 1977; Porteus, 1979; Radius, Dillman, Becker, Rosenstock, & Horvath, 1980; Sobal, Klein, Graham, & Black, 1988; Violato & Holden, 1988) and tend more to be preoccupied with appearance (Alexander, 1989; Eme, Maisiak, & Goodale, 1979; Feldman, Hodgson, Corber, & Quinn, 1986; Levenson, Morrow, Johnson, & Pfefferbaum, 1983; Parcel, Nader, & Meyer, 1977; Violato & Holden, 1988) and interpersonal relationships, particularly acceptance by peers and the opposite sex (Parcel, Nader, & Meyer, 1977). Boys tend more than girls to be concerned about sports and vocation (Parcel, Nader, & Meyer, 1977; Porteus, 1979) and acknowledge more stress in these areas (Armacost, 1989).

According to Millstein (1993), some of the differences in health concerns may account for differences in perceived health status. Some differences ascribed to gender may be due to the different maturation rates of males and females. Racial and ethnic differences in health knowledge exist which, in view of the link between economic status and education, may be caused largely by differences in economic status. In addition, racial and ethnic minority groups may have misconceptions about health issues or may hold beliefs which the majority group labels as misconceptions (Millstein, 1993).

Family Relationships and Health Perceptions and Behaviors

Relationships of older children and adolescents' with significant others can have a great impact on health-related perceptions and behavior patterns. Parents are in a strong position to influence health behavior. Identification with parental role models may lead older children and adolescents to adopt attitudes, coping strategies, and behaviors similar to those of their parents (Hauser, Borman, Jacobson, Powers, & Noam, 1991) or extended family members who perform caregiver functions. Studies show that adolescents may tend to seek support from parents for longer-term concerns, such as education and career, and from peers for more immediate concerns, such as clothing, substance use, and other lifestyle issues (Windle, Miller-Tutzauer, Barnes, & Welte, 1991). In addition, older children and adolescents seem to prefer parental support for emotional issues and concerns about the family and support from peers or other adults for other sensitive matters (Millstein, 1993).

Research addressing the effects of family relationships on adolescent development has increased dramatically. According to recent studies, healthy development requires that an adolescent's relationship with his or her parents evolve to a new level of interdependence rather than separation (Nutbeam, Haglund, Farley, & Tillgren, 1991). Investigators are identifying new ways in which child-rearing practices affect the development of autonomy and problem behaviors. The effects of different management strategies parents use with their children have also been examined (Baumrind, 1987; Hawkins & Weis, 1985; Perry & Jessor, 1985; Pratt, 1976), as well as the influence of parental stress on parenting practices, parent-child interactions, and child behavior (Webster-Stratton, 1989, 1990).

Another area of study is the impact of parenting style on self-efficacy and other constructs associated with empowerment and healthy development. Miller, McCoy, and Olson (1986) found a curvilinear relationship between parenting style and adolescent sexual behavior, with sexual activity rates highest among adolescents who have permissive parents, intermediate among adolescents who have strict parents, and lowest among adolescents who reported moderate parental supervision. The investigators speculate that very low or very high levels of parental control are not effective in stopping health-compromising sexual behavior in adolescents.

Baumrind (1991) investigated the effects of four parenting styles on adolescent competence and substance use: authoritative, authoritarian, permissive or nondirective, and rejecting-neglecting or disengaged. Adolescents reared by authoritative and democratic parents showed high competence and self-esteem and an internal locus of control and few problem behaviors. Variables associated with safeguarding adolescents from unhealthy risk-taking and with fostering competence were firm parent-child bonding; clear, consistent rearing practices; and a healthy balance of freedom and control. Healthy development (manifested by adequate or high competence, self-esteem, internal locus of control, and few problem behaviors) was hindered by authoritarian and disengaged styles and fostered by authoritative and democratic styles. Authoritative parenting was consistently associated with competence and few problem behaviors in males and females, regardless of developmental stage.

Peer Relationships and Health Perceptions and Behavior

In adolescence, peers become increasingly influential (Savin-Williams & Berndt, 1990), particularly in middle adolescence (Millstein, 1993). Relationships with new peer groups and significant shifts in norms, values, beliefs, and behaviors are among the major changes that many youth experience as a result of school transitions beginning in middle adolescence.

Adolescents may be more likely to talk to peers about health concerns, especially sensitive issues, because they fear losing adults' respect or approval by appearing ignorant or weak (Savin-Williams & Berndt, 1990). Thus, while interpersonal relationships, sexuality, and substance use are priority health concerns among many adolescents, most youth may limit discussions with physicians to conventional medical issues (Levenson, Morrow, & Pfefferbaum, 1984), although they feel that information from health care professionals is most reliable (Millstein, 1993). In addition, many adolescents depend more on peers for role modeling and support if they feel that basic needs for approval, support, and information are not being met by parents or other caregivers (Savin-Williams & Berndt, 1990).

Peers can be powerful sources of both positive and negative influence. Peer programs utilizing trained peer counselors and peer leaders have been studied as one approach for optimizing positive peer influence. As Hamburg (1986) notes, "Though rigorous evaluation of peer programs is thus far limited, the outcome measures are sufficiently encouraging to justify an intensification of research to sort out the conditions under which peer programs are most effective and to understand better how these approaches work and for whom they work most efficaciously."

The Robert Wood Johnson Foundation has underwritten a special program to train peer counselors as advisors on sex education. The Foundation reports, "Program training was designed to be self-affirming and empowering. By creating and acting out social dilemnas in role plays, students have developed their behavioral strategies and social skills." Perry, Kelder, and Komro (1993) and Rickert, Gottlieb, and Jay (1990, 1991) also have investigated the influence of peers on adolescent behavior.

Nurses' and Other Service Providers' Perceptions

The extent to which nurses' perceptions of healthy lifestyles interfaces with youth's perceptions needs further examination. Bibace and Walsh (1980), in their extensive investigations of children's perceptions about illness, have empirically observed that health professionals often lack an adequate understanding of youth in terms of health matters, may not understand health issues of importance to youth, or know how to elicit or communicate information about health issues in nonthreatening ways.

Other studies suggest that difficulties nurses experience in communicating with youth could interfere with their ability to understand the nature of the health issues, the meaning of the health issues to youth, and how best to work with young patients. Clark (1988) examined the interaction of school nurses with 4th, 5th, and 6th graders and determined that only one child in more than 200 interactions asked a question. Laroux (Igoe, 1991) discovered that the quantity and quality of a child's interactions were decreased considerably when school nurses made assumptions without verifying them with the child, did not incorporate the child's perspective in their interaction, and gave the child only small amounts of information. Research by Perlman and Abramovitch revealed that, although more than 90% of the children they studied had a specific and relevant question to ask during health visits, the parent and health care provider did not address the child's concerns and explained neither the treatment nor the symptoms to the child (Igoe, 1991).

Physicians and other adults often have different perceptions than adolescents. They may underestimate adolescents' general concern about their own health, not attend to health issues and stressors that are particularly significant to adolescents, over- or underestimate adolescents' health knowledge, and underestimate adolescents' perceived obstacles to prevention (Millstein, 1993). In addition, different adults may have different perceptions of adolescents' concerns. For example, Levenson, Morrow, and Pfefferbaum (1984) found that teachers and nurses tended to view peer acceptance as more important to adolescents (Millstein, 1993) than did physicians.

Culturally Appropriate Research Methods and Interventions

Changing Demographics

Ethnic minority children and adolescents and their families are a rapidly growing segment of the population on whose competence and productivity the United States will increasingly depend. Ethnic minority children, in particular, experience a health system that is inadequately funded and frequently insensitive to their race and culture (Siantz, de Leon, 1990). Effective implementation of health promotion programs requires attending to the cultural, ecological, and structural factors that influence the health of underserved populations.

The collection of accurate data about vulnerable populations and the design and testing of culture- and gender-sensitive health promotion interventions aimed at ethnic minority youth are especially important.

Minority group members, including African Americans, Hispanic Americans, Native Americans, and Asian Americans, constitute 14% of all adults in the United States and 20% of children 17 years and under. By the year 2000, one-third of all school-age children will be members of a minority group. The resident population of the United States comprises 30 million African Americans (12%), an increase of 13.2% since 1980 (U.S. Bureau of the Census, 1990). There are 22.4 million Hispanic Americans (9%), an increase of 53% since 1980. It is estimated that by the year 2023, Hispanic Americans will constitute 28% of the population, a total of 99 million (Siantz, de Leon, in press). Asian Americans number 7.3 million (3%), a 107.8% increase since 1980. Native Americans constitute 2.0 million (0.8%), an increase of 37% since 1980, distributed among more than 500 tribes or nations (Brindis, Irwin, & Millstein, 1992; LaFromboise & Low, 1989).

The accelerated growth of ethnic and cultural minority groups is due largely to the influx of millions of immigrants and refugees and the high birth rates among these populations. Newly arrived groups comprise predominantly Asian and Hispanic families that speak little or no English and have young children, many with special health needs. These families are joined by growing numbers of African Americans and other native-born minority children who are at particular risk because of rising poverty and social problems (Chan, 1992).

Ethnic minorities are disproportionately represented among the poor, unemployed, sick, and inadequately educated. Minority status, therefore, connotes a health risk context that is exacerbated by economic disadvantage as well as policies, organizations, and services that do not address issues associated with ethnic and racial differences.

As noted by Klein, Slap, Elster, and Schoenberg (1992), "Poverty is the single most important factor affecting the health status of adolescents. More than one-half of black, Hispanic, Native American, and Asian children in the United States live below the poverty level. Compared with adolescents who are not poor, these youth are more likely to drop out of school and have fewer job opportunities. They face increased rates of pregnancy, sexually transmitted diseases (including human immunodeficiency virus), substance abuse, unintentional injury, and homicide. Whereas, nationally, 20% of teens have some illness, deformity, or handicap, some of these subgroups have even higher rates of health problems. In one study, 75% of inner-city youth reported needing care for one or more health problems, and two-thirds of these adolescents had one or more problems confirmed on physical examination. Despite these needs, poor youth are only one-half as likely to identify a source of health care as adolescents of higher socioeconomic status. In sum, America's youth face serious medical and social problems that demand attention."

However, even though minority children and adolescents are the poorest and most rapidly growing segment of the youth population of the United States, very little literature is available to enlighten nursing practice about their health care problems, concerns, and needs. With the current increase in nonwhite and Spanish-speaking youth in the United States, the need for research and clinical resources relevant to this group has never been greater.

Nurses and other health care researchers traditionally have viewed race and socioeconomic status as confounding variables requiring statistical "control." However, more recent work has demonstrated the need to explore directly the creative adaptations required of minority families in their efforts to maintain their health and survive in the midst of unacknowledged social inconsistencies (Spencer, 1990).

Minority families do adapt and, although they adapt differently, there are similarities. They share limited access to societal and health resources, resulting in parallel experiences across ethnic groups. Each group has to cope and find ways of gaining entry to the mainstream, majority cultural, social, and health institutions (Harrison, Wilson, Pine, Chan, & Buriel, 1990). Family extendedness, role flexibility, biculturism, and the existence of ancestoral world views are shared in the lifestyles of these groups. Mediators of these shared experiences include the reasons for coming to America (Suzuki, 1980), the historical period of immigration (Serafica, 1990), and educational opportunities (Olmedo, 1981).

Generalizability Across Ethnic Groups

Although there may be some similarities, researchers must be cautious in generalizing research findings across all ethnic groups (Laosa, 1989). Nurses who attempt to apply research findings to practice or policy should consider whether the application is aimed at individuals from the same populations that yielded the findings (Laosa, 1991). For example, differences between some Hispanic and non-Hispanic blacks or between Native Americans from different tribal backgrounds may be greater than differences between some members of these groups and white Americans. Nurses and other health care professionals must understand these within-group differences if they are to deliver more effective and culturally sensitive interventions (Gibbs & Huang, 1989).

The cultural demographics of the United States are shifting quickly. As the population of the United States becomes more heterogeneous, health care professionals will provide health care to many more children and adolescents and their families from cultural, ethnic, and linguistic groups that are different from their own (Lynch & Hanson, 1991). Cross-cultural competence will become a necessary and crucial skill in promoting health among America's children and adolescents.

Changing Cultural Contexts

For most older children and adolescents, school transitions represent major changes in cultural context and encounters with new norms, values, beliefs, and behaviors. Issues that particularly warrant attention include the effects of changes in cultural context associated with school transitions on diverse populations of youth, and the implications of these effects for the design and implementation of health promotion strategies.

Research Needs and Opportunities

Concepts and Principles of Health Promotion

The attributes used in conceptual and operational definitions of empowerment in late childhood and adolescence need to be identified and refined. Variables associated with empowerment are contextual, as well as cognitive, emotional, social, and behavioral. Yet to be defined and tested are specific, age-appropriate social norms and expectations for youth participation in health-related situations inside and outside the health care system. Of special interest are intervention studies focusing on the creation of socialization opportunities that encourage rather than discourage the empowerment of youth. For example, interventions need to be developed and tested that allow youth to learn from other youth who model empowerment by practicing health-promoting behaviors in their daily lives and consumer assertiveness skills when they interact with the health care system. Cognitive and emotional variables, such as age-appropriate knowledge, sense of efficacy, and external or internal locus of control for health, merit further investigation, as do behavioral variables such as skill development to support self-responsibility and self-management of health-promoting behaviors at different ages.

Theoretical Bases for Health Promotion Among Youth

Increasing the effectiveness of interventions depends on developing adequate explanations of the psychosocial factors motivating individuals to engage in health-enhancing and health-compromising behaviors. Theories are needed that identify the factors influencing motivation and explain the relationships among them. Strategies to change behavior that do not incorporate an adequate understanding of these factors are only partially successful (Fleury, 1992).

Fleury (1992) identified weaknesses associated with four major models used to explain and predict health behavior: the health belief model, the health promotion model, the theories of reasoned action and planned behavior, and the self-efficacy theory. Research topics include the effect of time on health beliefs, attitudes, and adherence behavior; impact of life events on health beliefs; impact of self-efficacy on sustaining long-term behavior change; impact of differences in the value attributed to the behavior outcome; and variables unaddressed by the various models that may contribute to motivating health behavior, as suggested by unexplained variances in study findings.

A related area of investigation is the relevance and adaptation of these theories to older children

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and adolescents. Frameworks that attempt to explain and predict the health behavior of youth must take into account not only individual behavior, but also developmental factors and contextual variables, including ethnic and racial factors: community characteristics; characteristics of the health care delivery system; and relationships with peers, significant family and nonfamily adults, and health professionals (Blyth & Roehlkepartain, 1993; Bracht & Tsouros, 1990; Wallerstein, 1992). According to Igoe (in press), additional research is needed in a variety of areas, including:

- Children's and adolescents' health interests, questions, and worries at different ages
- Changes that occur over time in the ability of children and adolescents to ask questions about health concerns
- Techniques for successfully identifying a child's level of understanding about a particular health matter
- Youth's perceptions of health-related habits and lifestyles and of the notion of taking more personal responsibility for self-health
- Youth's interpretation and perceptions of the health lessons they are receiving.

Little is known about the success of social learning interventions in fostering healthy behaviors and lifestyles among older children and adolescents. Knowledge on the effectiveness of skills development as a protective factor against health-compromising behaviors in various contexts needs to be expanded and applied to the design of health promotion interventions for diverse populations of youth.

Interventions: Types and Features

Substantial research has been done on intervention characteristics that predict success, which include services that are flexible, intensive, comprehensive, accessible, culturally and developmentally appropriate, and delivered by caring, respectful professionals (Dryfoos, 1990; Schorr & Schorr, 1988). Knowledge on the best approaches with older children and adolescents needs to be incorporated into new intervention models.

Effects of Self- and Health-Related Perceptions and Interpersonal Relationships on Health Behavior

An important issue is the role that self-perceptions, health-related perceptions, family and peer relationships, community relationships, and relationships with service provider organizations play, separately and together, in building resilience—the interaction of internal and external protective factors which enable some young people at apparently high risk of negative outcomes to develop health-promoting attitudes and behaviors.

Youth Perceptions

Better understanding is needed of how older children and adolescents at different developmental stages and in different cultures view their health, vulnerability to health problems, and health options, and of how they make choices that affect their health. Equally important is their view of themselves as consumers within the health care delivery system. Their perceptions of the social norms for consumer behavior and their role in interacting with health professionals also are largely unknown. Further, there are no data on the effect of cultural and other contextual elements on actual and perceived health options and health-related behavior.

There is much to be learned about what motivates older children and youth to adopt health-promoting and health-compromising behaviors. Studies should explore how older children and adolescents at different developmental stages and in different cultures and contexts view their health and health options; otherwise, approaches to health promotion could be irrelevant to these target populations. Accurately assessing adolescents' perceptions, motivations, and decision-making processes is an essential prerequisite to identifying and implementing needed health promotion messages and strategies (Millstein, 1993).

Other infrequently investigated topics are the impact of race and ethnicity on differences in health concerns and the separate effects of social class. Research reveals differences in perceptions about general health and the importance attributed to various health issues. For example, African American adolescents are more preoccupied with their health and perceive themselves as less healthy and more vulnerable to certain illnesses than white adolescents. Differences in perceptions could reflect differences in health status and health knowledge. Given the link between health and economic status, researchers should control for economic status in order to shed light on the nature and causes of racial and ethnic differences in health concerns (Millstein, 1993).

Contextual variables affect adolescent responses to questions about their perceptions and experiences; these variables include specific events (e.g., adolescents are more likely to identify school as a source of stress during examination periods), daily patterns, and cohort characteristics (Millstein, 1993). Another research area is the impact of contextual factors, including socioeconomic status, race and ethnicity, and education, on how adolescents perceive their health and health options and understand health messages.

An overreliance on chronological age as an indicator of developmental status and excessive use of survey methods have characterized much adolescent health research. Indicators of developmental status other than chronological age should be utilized, since wide variations in the timing of biological maturation can occur among youth of the same age. In addition, adolescent health research should combine qualitative and quantitative approaches. When used to determine whether adolescents have particular health-related concerns, survey methods miss important qualitative differences in how adolescents interpret these concerns at different ages and stages of development (Millstein, 1993).

Family Relationships and Health Perceptions and Behaviors

Families exist within specific cultural and community contexts that affect how they communicate about and influence their adolescents' health. A challenging research task is the development of models for health promotion intervention that focus on adolescent-parent relationships and that explicitly address the impact of cultural and community variables on health-related communication. Longitudinal studies also are needed; there is essentially no research on the long-term effects of health promotion interventions for youth.

A limited number of investigations have explored the relationship between parental lifestyle practices and the health behaviors of offspring in childhood and young adulthood. Additional research is needed to determine the stability of these relationships over longer time periods. Much remains to be learned about the characteristics and relationship dynamics of family members and peers that help older children and adolescents adopt health-promoting behaviors. Studies show clearly that poor relationships at home and at school are predictors of smoking and alcohol abuse (Jessor & Jessor, 1977). However, investigators have not succeeded in demonstrating experimentally how these risk factors can be modified. These and related variables are difficult to measure objectively and greatly need further study. Another fruitful area of investigation is the influence on youth of adults, such as teachers, neighbors, and clergy, who are not family members but who may be significant role models (Werner, 1984) and with whom nurses may interact in different settings.

Peer Relationships and Health Perceptions and Behaviors

Recent work on peer influence processes, the age of greatest susceptibility to negative peer influences, and the nature of peer groups as normative reference groups suggests a need to explore and refine through empirical studies new approaches to health promotion and prevention that more adequately address the positive and negative effects of peer relationships on health behaviors (Asher, 1983; Dishion & Loeber, 1985; Hartup, 1983; Irwin, 1987).

Nurses' and Other Service Providers' Perceptions

Of special interest are studies that compare the meanings of health and health-related perceptions of older children and adolescents and nurses and that determine how similarities and differences in these perspectives influence the effectiveness of communication and interventions involving youth and nurses.

Culturally Appropriate Research Methods and Interventions

The most effective research methods and interventions are culturally sensitive and appropriate to the target population. A variety of issues involving culture affect health promotion research and interventions for older children and adolescents. Researchers and other health care professionals develop, through their training, a professional idiom of expression, values, and expectations that makes all their interactions with clients and subjects cross-cultural in some sense. A number of ethnic and regional differences influence the health-related behavior of youth in various social and cultural contexts and may affect their response to health promotion programs. These differences are found in language and communication styles; expectations about gender roles and relationships and the behavior of youth, parents, other adults, and professionals; emphasis placed on personal efficacy; values associated with health and well-being; and explanatory models (Kleinman, 1980) of health and risk. Changes in cultural context, such as school transitions, are experienced by most older children and adolescents and merit considerably more research attention. For example, the impact of school transitions on health-related beliefs, values, and behaviors of diverse populations of youth need to be recognized and investigated, as do the implications for health promotion research methods and interventions. A related topic is the exploration of the effectiveness of health promotion activities that anticipate or follow transitions in schools.

Culturally sensitive research and program design flow from a perspective that values differences among client and subject groups, privileges the participant's point of view, and is dedicated to developing interventions that, to the extent possible, are compatible with, and protective of, the values and expectations of participants. Study designs need to explicitly include an understanding of the cultural context and its influence on the beliefs, values, and expectations of older children and adolescents from their point of view. This requirement must be met in both the data collection and analysis phases. In the first phase, information is gathered on the beliefs, values, and communication styles that characterize youth and that they incorporate into their personal explanatory models of health. Qualitative research is usually the most appropriate approach for this task (Leininger, 1985, 1987; Scrimshaw & Hurtado, 1987). In the second phase, the cultural context is used as a variable in analysis to compare behavior across groups, with the caveat that youth from ethnic and regional groups are not homogeneous and may differ in their beliefs, values, and expectations. In addition, research should address the differential impact of cultural and socioeconomic factors. The potential impact of divergent beliefs, expectations, and values often is mediated through socioeconomic factors and education.

Crucial to the planning and implementation of successful interventions is the identification of intervention methods, activities, language, and communication styles that work with the expectations and values of target individuals and groups and their models of health. For example, the value that youth place on the opinions of older family members or other role models varies among and within ethnic groups. Family interventions may be appropriate in some settings and not in others (Gottlieb & Green, 1987).

Several techniques are being used successfully as part of research designs and in the planning stages of interventions to identify and conceptualize key characteristics of the beliefs, values, and idioms of client and subject groups. These techniques, which include social marketing approaches (Kotler, 1989; Ling, Franklin, Lindsteadt, & Gearon, 1992; Manhoff, 1985; Palank, 1991), focus group interviews (Bryant & Bailey, 1991; Krueger, 1988), and rapid assessment (Scrimshaw & Hurtado, 1987), may be appropriate for health promotion research among older children and adolescents.

Recommendations

Theoretical Bases for Health Promotion Among Youth

- Test the effectiveness of conceptual models of social skill development, problem-solving, and decision-making in assisting youth from different cultural and community contexts to develop and maintain health-promoting behaviors.

- Test the effectiveness of conceptual models of community participation in health promotion interventions focusing on diverse populations of youth.

Interventions: Types and Features

- Design and test developmentally appropriate health promotion interventions for youth that involve regular, periodic contact with health professionals. Evaluate the interventions' effectiveness in promoting long-term maintenance of a variety of healthy behaviors. Identify factors in the community that help and hinder intervention effectiveness. Explore strategies for maximizing helpful factors and minimizing unhelpful factors.

- Determine how current technologies, such as interactive videos and computer-assisted programs with self-learning modules, can best be used in various educational, health, and social settings in diverse communities to promote health among older children and adolescents.

Effects of Self- and Health-Related Perceptions and Interpersonal Relationships on Health Behavior

Youth Perceptions

- Investigate the linkages between health perceptions of youth and health-promoting behaviors.
- Develop and test intervention strategies aimed at individuals, groups, and communities to (a) build developmentally appropriate social competence, responsibility for one's own health, sense of self, autonomy, and empowerment; (b) promote healthy stress management; and (c) foster conflict resolution and violence reduction among diverse populations of youth.

Family Relationships and Health Perceptions and Behavior

- Determine how parents' efforts to support and monitor their children at different ages affect the development of autonomy and health-promoting and health-compromising behaviors. Explore how such efforts increase or decrease the positive and negative influence of peers and significant nonfamily adults.
- Investigate approaches used by families from different cultural and community contexts to manage information that affects the healthy development of their preadolescent and adolescent children. Identify family strategies and community factors that maximize health promotion opportunities during developmental transitions.

Peer Relationships and Health Perceptions and Behavior

- Investigate individual characteristics and styles (e.g., sensation seeking) and community characteristics that help to determine peer group membership and types of influence on health-enhancing behaviors.
- Develop and test alternative, theoretically driven health promotion interventions aimed at individuals and communities to maximize the positive impact of peers and minimize their negative influence. Incorporate strategies that take into account the characteristics of youth, their close friendships, peer group norms, and community characteristics.

Nurses' and Other Service Providers' Perceptions

- Assess the extent to which nurses' perceptions of healthy lifestyles interface with youth's perceptions. Identify the implications for health-promotion strategies.

Culturally Appropriate Research Methods and Interventions

- Develop culturally sensitive instruments that consider language effects, acculturation, and generational effects.
- Identify culture-specific personal and environmental influences on the health behavior of youth, including culture-specific influences associated with school transitions that affect health behavior.
- Develop and test culturally sensitive health promotion and disease prevention interventions in various settings, including schools, taking into account changes in beliefs, values, and norms associated with school transitions among diverse populations of youth. Test the balance of interventions prior to and after transitions which is needed to optimally promote healthy development.

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3

STRATEGIES AND SETTINGS FOR NURSING INTERVENTIONS

Implementation of health promotion interventions for older children and adolescents raises important questions about nurses' contributions to health promotion programs, their preparation to address adolescents' health concerns, and the optimum settings and strategies for reaching young people. This chapter examines the following issues:

- The need for collaborative, multidisciplinary team approaches involving nurses and other health care providers in outreach and service delivery
- The preparedness of nurses to provide health promotion for older children and adolescents and the adequacy of nursing education in this area
- Traditional and nontraditional settings for implementation of health promotion strategies.

State of the Science

Nurses in Health Promotion and Disease Prevention

Researchers and youth-serving professionals representing multiple perspectives have consistently found that service delivery, research, and training in adolescent health are best provided by collaborative, multidisciplinary teams (Bearinger & McAnarney, 1988; U.S. Office of Technology Assessment, 1991). The question of how nurses can most effectively perform health promotion and disease prevention must thus be examined in terms of their collaboration with other service providers. This approach will not only enhance outcomes for youth, but also optimize the unique contributions of nurses and other disciplines represented on health teams (Blum & Smith, 1988). As suggested in chapters 1 and 2, health promotion goals for youth can only be met through interventions that address a range of physical, cognitive, emotional, and social needs. Interventions drawing upon the rich array of resources provided by a multidisciplinary group can offer a variety of health-related services in a single setting. Multidisciplinary teams are more likely to implement effectively the comprehensive, multifaceted programs required by youth, particularly by adolescents at high risk (Dryfoos, 1991).

Survey Data

Nurses are vital members of the health care team. Currently, the number of registered nurses in the United States is approximately 1.5 million, making them the largest group of health care providers in the country (Broering, 1993). Relevant nursing practice areas include public health nursing, family nursing, pediatrics, gynecological care, family planning, school nursing, child and adolescent psychiatry, health education, mental health, and home care. These functions are carried out in multiple settings including hospitals, public health departments, mental health departments, clinical settings, free-standing community clinics, homes, state institutions, and universities.

Various national surveys of nursing practice provide a picture of the extent to which nurses are involved in health promotion with older children and adolescents, the types of services most frequently offered, and perceptions of the adequacy of their educational preparation for working with youth. A recent survey of state boards of education focusing on school nurses indicated that the primary mandated activity for school nurses is health appraisal, which provides a basis for physical care such as emergency care, communicable disease control, health and developmental assessments, and problem management (Broering, 1993).

A survey of members of the National Association of Pediatric Nurse Associates and Practitioners (NAPNAP) found that nurses in primary care settings utilize a substantial portion of their time delivering primary care to ethnically diverse youth whose families are economically disadvantaged and many of whom are at highest risk (Broering, 1993). According to the NAPNAP survey, 46% of nurse practitioners work in public health departments, hospital clinics, or school health settings, with their time divided equally between acute and well care for middle- to low-income families and between African American and white families. In areas of specialty practice, members report spending 25% of their time delivering primary care to adolescents, another 8.5% providing gynecological or family planning care, and 14.5% delivering school health care.

Nurses in free-standing clinics who responded to the American Academy of Nurse Practitioners survey reported that 78.4% of the families they serve earn less than $15,999 per year (Broering, 1993). This survey did not ask for data on health care and promotion activities for adolescents.

Opportunities for Influencing Behavior

Nurses working with youth perform a wide variety of primary care, management, education, and advocacy functions. As a result, they have valuable opportunities to serve as role models and influence health behavior among older children and adolescents. Nurses have many characteristics that enhance their value as healthy role models, including their education and training, frequent contact with youth, credibility, visibility, and ethnic diversity.

Most models of behavior change incorporate as an integral component the unique, individual characteristics of the service providers (Joos & Hickman, 1990). Characteristics of health providers, such as the various types of influence they exercise and the many opportunities to interact with youth, make them especially suited to influence adolescents' attitudes and behavior (Joos & Hickman, 1990).

These types of influence or social power may be expert, legitimate, coercive, reward, informational, and referent, as delineated by Raven (1982). For the provider to have expert and legitimate power, patients must view the provider as credible and knowledgeable. Coercive and reward power pertain to the provider's ability to control punishment and reward. Such influences on behavior may not create long-lasting behavioral change, however, as compared to change created through informational or referent power. Informational power utilizes the content and persuasiveness of the health message to influence patient behavior. Referent power is based on a patient's identification with the provider (and his or her healthy attitudes and behaviors), such that the patient seeks to be like the provider or have similar characteristics. As a result, the patient and provider may adopt shared goals, leading the patient to experience a more internalized and enduring desire for health-promoting behavior.

Preparedness of Nurses to Address the Health Concerns of Youth

Critical to the effective delivery of health promotion interventions for youth is the adequacy of nurses' educational preparation. Are they prepared to address the most common issues and concerns of older children and adolescents? In a 1985 national, multidisciplinary survey of professionals in medicine, nutrition, psychology, and social work, all reported insufficient preparation in adolescent health in their entry-level and specialty education. For nurses, one-fourth or more of those who work with adolescents indicated skill deficiencies in 12 of the 22 identified adolescent health issues (Bearinger, Wildey, Gephart, & Blum, 1992).

More than 40% of nurses surveyed reported insufficient preparation to address adolescent health issues related to endocrinology, delinquency, gay and lesbian issues, depression, eating disorders, sports injuries, and substance abuse assessment. Even nurses who work most with adolescents still believe they are inadequately prepared. This self-perception raises the question of whether nurses (and those in other health-related disciplines) would be more able to meet the health promotion needs of youth if they, and other members of the health care team, had sufficient educational preparation to address the most common health issues and concerns of this population (Bearinger, Wildey, Gephart, & Blum, 1992).

In addition, several studies evaluating nurse practitioner interactions found nurse practitioners lacking in counseling and therapeutic skills, as shown by the frequent use of commands and the infrequent use of questions to elicit information from young patients. Additional, process-oriented training in behavioral pediatrics and interpersonal counseling, as well as content-oriented training in specific adolescent health issues, may help nurse practitioners perceive themselves as more fully equipped to meet the challenges of working with older children and adolescents (Bibace & Walsh, 1980; Igoe, 1991; Glascock, Webster-Stratton, & McCarthy, 1985; Webster-Stratton, Glascock, & McCarthy, 1986).

Settings for Implementation

Increasing access to services is a central issue in the design and implementation of health promotion interventions for older children and adolescents. Critical factors are the effective application of models for community involvement (Blyth & Roehlkepartain, 1993; Bracht & Tsouros, 1990) and use of sites for primary, secondary, and tertiary interventions by nurses working in collaboration with other members of the health care team to reach all young people, especially youth at high risk for negative outcomes. Nurses, probably more than any other group of health service providers, already perform extensive secondary and tertiary health promotion.

To effectively reach all youth, the settings for health promotion interventions must be varied and include both traditional and nontraditional sites.

Health Promotion in Traditional Nursing Settings

Traditional settings include schools and school-based clinics, primary care sites, hospitals and emergency facilities, and households. Research on schools and primary care sites indicates that adolescents prefer different settings and sources of health information for different types of health concerns (Millstein, 1993).

Schools. Most health promotion programs for youth are delivered in schools, primarily in the classroom. They often consist of education and skills development for the students that focus on changing dietary habits, resolving conflicts nonviolently, preventing substance use and abuse, and promoting responsible sexual behavior. Other programs involve changing the school environment itself by improving physical education programs and food service or adopting policies against smoking. There is some evidence that these environmental changes are more effective in altering behaviors than even well-designed educational strategies (Ellison, Capper, Goldberg, Witschi, & Stare, 1989; King, Saylor, Foster, Killen, Telch, Farquhar, & Flora, 1988). Environmental changes that are made in physical education and food service policies may reinforce educational programs aimed at personal lifestyles.

Health education classes and schools as settings for acquiring health information are viewed favorably by adolescents (Millstein, 1993). Topics that adolescents think should receive more attention in schools include self-esteem and managing stress and stressful family events, such as death, divorce, and unemployment. However, various studies indicate that many adolescents may view their teachers as uncaring, with perceived supportiveness decreasing steadily between grades 7 and 12 (Millstein, 1993).

School-based programs have been categorized as knowledge/attitude education programs, affective/interpersonal education programs, behavioral prevention programs, "alternative" programs, and school climate approaches (Kumpfer, 1989).

Knowledge/attitude education programs seek to influence health outcomes cognitively by increasing students' knowledge of behavior risks and consequences, thereby changing their attitudes about risk-taking. These programs consistently have been found to increase knowledge, but have been inconsistent in producing immediate or long-term behavior change. Interventions using this approach may not be developmentally appropriate or culturally sensitive. Quality control is very difficult, and few programs are enduring or intensive enough to have a measurable impact.

Affective/interpersonal education programs seek to influence behavior indirectly by enhancing self-concept, interpersonal relationship skills, and awareness of communication and decision-making processes. Outcome evaluations provide little support for this approach (Huba, Wingaard, & Bentler, 1980). Without other approaches combined into multifaceted models, the global or generalized development of these affective skills seems to have little, if any, impact on behavior.

Behavioral prevention programs focus on specific risk behaviors such as substance abuse or unsafe sexual activity. Behavioral programs, which draw heavily on social learning theory, are also called the "social influence" approach. Such programs teach students to resist peer pressure and to model health-enhancing behaviors. They have been effective in delaying the onset or reducing the frequency of risk behaviors. However, some health researchers and educators are concerned that the apparent success of behavioral programs has led to an overemphasis on this single approach at the expense of multifaceted intervention models (Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990; Botvin, Baker, Filazzola, & Botvin, 1990). Furthermore, the stability of the new healthy behaviors over time is poorly documented.

"Alternative" programs are intended to provide youth with alternative skills and competencies such as those gained through jobs, recreation, sports, and other extracurricular activities. Positive outcomes of these programs are affected considerably by the social environment and the persons involved in program implementation.

School climate approaches are based on the notion that the social climate within schools and communities plays an important role in school performance, social competence, and overall development. Such programs seek to develop caring communities in which youth can experience connectedness to the school regardless of academic success. This experience of connectedness is associated with greater involvement in school activities and the formation of positive peer groups. School climate initiatives need to incorporate more adequate outcome evaluations, as do all of the above programs.

School-based clinics in many communities throughout the United States offer a wide variety of health promotion interventions. Such efforts have been endorsed by the National Academy of Sciences and the U.S. Office of Technology Assessment (Hayes, 1987; U.S. Office of Technology Assessment, 1991). School-based clinics increase access to preventive and primary care services (Kirby, Resnick, Gunderson, Kocher, Downes, Pothoff, & Zelterman, 1992) and could become involved in active partnerships with other community-based service providers to address the complex morbidities of older children and adolescents (Dryfoos, 1988; Resnick, 1992).

Research shows that adolescents are receptive to services offered by school-based clinics, especially for emotionally charged issues such as depression (Millstein, 1993). Positive features of school-based clinics cited by adolescents are staff attitudes and ability to communicate, the services provided, convenience, and confidentiality.

Schools will continue to be the mainstay of health promotion because of their ability to access vast numbers of youth, provide intensive education, and modify health-related aspects of the environment. School nurses are optimally situated to be involved in developing, implementing, and evaluating school-based health promotion initiatives. Unfortunately, such programs do not effectively reach youth who may be at highest risk because they are frequently absent from school or have dropped out.

Primary Care Sites. Health promotion in primary health care settings has focused mainly on sexual behavior. However, primary care sites offer an extremely important opportunity for developing and evaluating more comprehensive health promotion programs because of the number of youth who receive primary care and the credibility of nurses and other health service providers. Adolescents would rather receive health information from health care providers than any other adult source, but they are more comfortable acquiring information on emotionally charged issues in group situations than in one-on-one meetings (Millstein, 1993).

Adolescents have other preferences as well. They are more comfortable in health care settings designed for youth than in facilities designed for young children or adults. Important features cited by youth are confidentiality, having the same provider at every visit rather than different providers, being able to spend enough time with the provider, convenience, cost, and availability of specific services. In terms of provider characteristics, adolescents and adults have similar likes and dislikes. Positive characteristics include compassion, understanding, communication ability, honesty, competence, kindness, and warmth. Negative characteristics include attitudes that are patronizing, unfriendly, and impersonal (Millstein, 1993).

Hospitals and Emergency Facilities. These traditional nursing settings have not generally been considered a suitable context for health promotion. However, their potential as settings for innovative health promotion interventions should not be overlooked.

Households. Scientists and health professionals focusing on youth have become increasingly interested in family-based health promotion interventions as a means of promoting long-term change for youth and family members. Research evaluating such programs is limited. Some success has been demonstrated in altering health behaviors in Latino families (Nader, Sallis, Abramson, Broyles, Patterson, Senn, Rupp, & Nelson, 1992), and some research has been conducted among African American families (Baranowski, Henske, Simons-Morton, Palmer, Tiernan, Hooks, & Dunn, 1990).

Health Promotion in Nontraditional Nursing Settings

Current and anticipated demographic shifts and contemporary social and environmental changes are contributing to an increase in the number of high-risk youth. Many older children and adolescents cannot be reached through mainstream educational and health care settings. These youth also tend to be at highest risk for health and social problems. If health promotion efforts are concentrated in school settings, school dropouts, who comprise 40% to 50% of some subpopulations of older adolescents, would be missed (U.S. Office of Technology Assessment, 1991).

Nontraditional systems are emerging that blend health, education, and social services and make them accessible to young people by operating in new settings. These innovative strategies recognize that addressing the significant health issues of today's diverse youth populations means changing delivery systems to accommodate the changing demographics of youth and finding ways of meeting the many interrelated needs associated with the so-called social morbidities of youth.

Shelters, Social Service Programs, Correctional Institutions, Shopping Malls, Religious Institutions, Worksites, and Recreational and Cultural Groups. Older children and adolescents at particularly high risk can be reached through such settings, which are not traditional sites for either nursing care or health promotion. Little is known about the use of such settings for health promotion aimed at older children and adolescents.

Communities and Neighborhoods. Communities are the context in which older children and youth develop values, learn behavior patterns, and make decisions that affect their lifestyles. Some research has examined characteristics of neighborhoods and communities that could be protective of families or place them at increased risk for negative outcomes. Studies controlling for socioeconomic status indicate that children and adolescents are more likely to pursue healthier lifestyles in some communities than in others (Blyth & Roehlkepartain, 1993). Bracht and Tsouros (1990) have provided frameworks for understanding the conceptual basis and the strategic implications of community participation for health promotion.

Community involvement in health promotion programs ranges from social marketing campaigns and other public media events to initiatives undertaken by parent and community groups (Bracht, 1990). Typically, the goal of social marketing and other public media events is to increase knowledge and change attitudes. The impact of these events is similar to the knowledge/attitude approach implemented in schools. Used alone, they have limited influence, if any, on behavior. The goal of initiatives launched by parent and community groups is to build health-promoting climates within communities. These groups work to create contexts in which youth encounter more health-promoting messages and norms. Such community and neighborhood approaches are promising when combined with other health promotion approaches and settings.

Rural Settings. Most available research on health-promoting behaviors in youth has been carried out in urban or suburban settings. Although research on health-related behaviors suggests that rural youth are no less likely to engage in risky behaviors, the opportunities for health promotion activities aimed at youth are different in rural settings. In addition, rural youth may have a different relationship to their communities and a more limited array of health-promoting activities available to them than urban and suburban youth.

Research Needs and Opportunities

Nurses in Health Promotion and Disease Prevention

Nurses are, and can become even more, powerful influences of youth behavior. Survey data suggest that nurses and other health care providers have many opportunities to intervene with older children and adolescents. To learn how to maximize nurses' potential as positive role models, researchers must explore further the nature of nurse-youth relationships and their impact on behavior change. Yet to be documented are the extent to which nurses already are providing health promotion services, the nature and efficacy of these services, and the factors that facilitate and hinder efficacy.

Not enough is known about the relationships between nurses' communication styles and behaviors and how older children and adolescents interpret health promotion messages. A related area of investigation is the effect of health providers' communication styles and behaviors on the success of health promotion interventions. As members of collaborative teams, nurses either already are performing health promotion functions or are ideally suited to do so. The examination of how nurses can collaborate with other health professionals to maximize health promotion interventions for youth is a priority research task.

Preparedness of Nurses To Address the Health Concerns of Youth

A crucial issue is whether nurses and other health professionals are adequately prepared to play an optimal role in implementing health promotion interventions for youth. Research is needed to determine how best to enhance the skills of these health professionals in providing health promotion services to youth (Bearinger, Wildey, Gephart, & Blum, 1992). Yet to be undertaken is a comprehensive analysis of the competencies (knowledge, skills, and attitudes) demonstrated by nurses who work with older children and adolescents in different practice areas, and of the competencies in which nurses perceive they require more education and training. Particularly important is more information from diverse populations of older children and adolescents on their perceived needs and obstacles to receiving health promotion services and taking positive health actions. Data from such analyses could be used to identify approaches for enhancing nursing education and training to fill identified gaps in competencies crucial to the provision of health promotion services for youth.

Settings for Implementation

There is much to be learned about the effectiveness of providing interventions in various settings. Studies are needed to identify health care and nontraditional settings that, when combined with appropriate health promotion strategies, might offer the greatest potential for effectively reaching disenfranchised youth. Topics of investigation include the match between health behavior targets and settings; the appropriateness of different settings for group, family, and individual interventions; the types of settings best suited for reinforcement interventions; and the types of contextual changes that can be made in settings to support health promotion messages.

Health Promotion in Traditional Nursing Settings

Nurses are in contact with youth in many traditional health care settings, and research is needed to ascertain the optimal use of these settings and the most effective approaches to health promotion for different contexts. In many traditional health care contexts, nurses interact with the same youth over several or many years. In such cases, investigators may be able to evaluate long-term health promotion efforts that take into account developmental changes.

Research to determine the best use of both traditional and nontraditional settings should include an examination of how older children and adolescents perceive these settings for health promotion activities. Particularly important are data on how older children and adolescents perceive traditional and nontraditional health promotion settings (Millstein, 1993).

Schools. Studies are needed to determine the combined and separate effects of environmental and educational approaches to health promotion. For example, students who are admonished in class to eat reduced-fat diets, but who encounter high-fat lunches in the school cafeteria, may not be motivated to put forth the effort needed for dietary change. A combined approach, however, may be reinforcing and effective. Also important are an examination of student utilization of school-based clinics and community acceptance of these clinics. Topics of special interest include the credibility of school personnel as information sources for older children and adolescents and the reliance of older children on school personnel for information about different health concerns (Millstein, 1993).

Primary Care Sites. Nurses already have made progress in delivering health promotion services in clinical settings (Pender, 1987), but the efficacy of these interventions needs to be evaluated. Family intervention is possible in primary care sites because young people often are accompanied to appointments by a parent. The effects of child-only versus joint interventions on health-related behaviors should be examined in these sites. Also important are studies that explore the perceptions of youth on how nurses and other health providers in primary care and other traditional settings can best meet their health-related needs. Another productive area of inquiry is nurses' potential role in making primary care settings not specifically designed for older children and adolescents more responsive to this population. In addition, not enough is known about how organizational factors in health care institutions affect health promotion for youth and family members.

Hospitals and Emergency Facilities. Creative research can challenge the assumption that these settings are unsuitable for health promotion. For example, young patients who spend much of the day watching television could be the focus of a study exploring the impact of health promotion videotapes designed for young people. In addition, visits to the emergency room could serve as teachable moments for some injured youth who may be ready to learn how to prevent future injuries. Studies are needed to evaluate the effects of counseling and/or educational materials on young patients receiving emergency care.

Households. Nurses have a unique opportunity to contact older children and adolescents and their families through home health visits. A first step in examining the potential for integrating health promotion into such visits is to determine how frequently nurses are in contact with youth and other family members during home visits and to what extent nurses already are performing health promotion. A subsequent step is the development and testing of interventions appropriate for this context. More work is needed to increase the participation of families in school- and community-based health promotion programs.

Health Promotion in Nontraditional Nursing Settings

Health promotion must successfully reach all young people inside and outside of mainstream society. To this end, a wide variety of nontraditional settings and strategies for health intervention merit investigation to reinforce health promotion messages and activities provided in schools and to access youth who are often absent from school, have dropped out, or may be otherwise isolated or alienated.

Shelters, Social Service Programs, and Correctional Institutions. A critical research task is the investigation of effective ways of providing health promotion services to youth in shelters for runaways and the homeless, adolescents receiving assistance from social service programs, and incarcerated youth, despite the many obstacles to delivering health promotion in these settings. Research could focus on identifying barriers to health promotion and developing solutions to these barriers that accommodate the limited resources available to older children and adolescents. Since nurses are present in many of these settings, they may be able to play a prominent role in addressing the health promotion needs of youth.

Shopping Malls. Teens routinely congregate in shopping malls to socialize with their peers, and their need for peer contact could be channeled in healthy directions. Malls may be a fruitful context for a highly engaging, peer-oriented approach to health promotion. Health promotion efforts would have to be compelling enough, however, to compete successfully with many other distractions. Malls have been sites for health screenings, but research on health promotion for youth in malls is limited.

Religious Institutions. Churches and other religious institutions provide excellent opportunities for health promotion and family interventions. Some research on church-based health promotion has been reported (Lasater, Wells, Carleton, & Elder, 1986), including programs for African Americans (Wiist & Flack, 1990), but none has focused on youth.

Worksites. Worksites are a typical community setting for health promotion. However, teenage workers have seldom been the focus of interventions, although large numbers of youth are in the workforce (U.S. Office of Technology Assessment, 1991). Their health represents the well-being of the workforce of the future. Collaborative initiatives involving nurse researchers and the corporate sector are needed to develop and test appropriate health promotion interventions for young workers. For example, many youth are employed in fast-food restaurants, and the effect of this employment on dietary behaviors could be explored. Ways to prevent occupational injuries is another research topic.

Recreational and Cultural Groups. Older children and adolescents often are members of recreational and cultural groups and organizations, many of which could play a role in health promotion. Little or no research has been conducted in this area. One exception is a diet and physical activity program for African American families that was implemented in community centers (Baranowski, Henske, Simons-Morton, Palmer, Tiernan, Hooks, & Dunn, 1990). Promising collaborative research could involve organizations that promote youth sports and physical activity, such as YWCAs, YMCAs, dance studios, swimming teams, other youth sports teams, Boy Scouts, Girl Scouts, and youth camps. Because the mission of these organizations is compatible with health promotion, they may be willing to broaden their services by forming partnerships with health professionals. Of particular interest are studies that examine the extent to which these organizations have an impact on various subpopulations of youth, emphasize health promotion, and are willing to work with health researchers and practitioners.

Communities and Neighborhoods. Research is needed to identify and assess the relative importance of community characteristics that provide more positive environments and promote healthier behaviors in older children and adolescents. A crucial task is investigating ways to promote healthy environments for youth and their families, particularly in communities with high rates of violence and vulnerable young people, including youth who are economically disadvantaged, members of minority groups, immigrants, gay and lesbian, alienated, and disabled or chronically ill.

Rural Settings. Yet to be undertaken is a comprehensive analysis of the constraints and opportunities for promoting healthy lifestyles available in rural settings as compared with urban and suburban settings.

Recommendations

Nurses in Health Promotion and Disease Prevention

- Investigate the effectiveness of multidisciplinary teams of health and education professionals, including nurses, in initiating and participating in health promotion programs for youth.

- Investigate the extent to which the characteristics of providers, including communication styles, behavior, education, and experience, affect and best promote health promotion and disease prevention among youth.

- Identify the most effective approaches for enhancing the skills of health professionals in providing health promotion services to youth.

Settings for Implementation

- Test the effectiveness of incorporating health promotion interventions for youth into traditional health care settings, such as emergency facilities, school-based clinics, home health visits, and other primary care sites including health maintenance and managed care organizations and private care practices.

- Test the effectiveness of alternative models and outreach strategies in settings such as youth-serving community agencies, shelters for runaways and the homeless, malls, churches, and youth-employing worksites.

- Compare the health behavior of youth in different community settings. Identify and assess the relative importance of community characteristics that promote or constrain health-promoting activities and healthy lifestyles (such as parks, recreation facilities, libraries, community organizations, and school-based clinics). Determine how these characteristics affect the balance of primary, secondary, and tertiary health services that are needed, and examine the contributions of nurses given different balances.

- Explore strategies for promoting healthy environments for youth and families, particularly in communities with high rates of violence and vulnerable young people.

- Examine the special constraints and opportunities for health promotion for rural youth, and explore strategies for addressing these constraints and building on positive alternatives available to rural youth.

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BIOGRAPHICAL SKETCHES OF PANEL MEMBERS

CHERYL S. ALEXANDER, PhD, RN, FAAN

Dr. Alexander is Professor, Department of Maternal and Child Health, The Johns Hopkins School of Hygiene and Public Health, Baltimore, and Co-Director of the Maternal and Child Health Science Center Consortium. She holds joint faculty appointments in the School's Department of Health Policy and Management and in The Johns Hopkins School of Nursing. She has served as Director of the Nurse Training grant for nurses in the Masters of Public Health program at Johns Hopkins and currently is a member of the Nursing Science Review Committee at the National Institute of Nursing Research, NIH. Her research is in the area of early adolescence with a particular focus on the health and health care needs of adolescents from rural communities. She has published numerous scientific articles on behavioral risk factors for the health of rural and minority youth. She is currently co-principal investigator of a preventive intervention targeting alcohol and other drug use and risk-taking behaviors for human immunodeficiency virus (HIV) among Native American adolescents.

LINDA H. BEARINGER, PhD, RN

Dr. Bearinger is Assistant Professor, School of Nursing, and Director of Training for the Adolescent Health Program, Department of Pediatrics, School of Medicine at the University of Minnesota, Minneapolis. She received a master's degree in community health nursing from the University of Colorado and a doctorate in educational psychology from the University of Minnesota. Following clinical practice in public health nursing with a focus on high-risk families, she taught community health nursing at St. Olaf College, Northfield, Minnesota, for 7 years. From 1986 to 1989, she was Director of the Adolescent Health Clinic at the University of Minnesota. Dr. Bearinger has provided program consultation to health agencies serving youth, including Hazelden Resource Center (Center City, MN), Face to Face Teen Clinic (St. Paul, MN), Rocky Mountain Planned Parenthood (Denver, CO), the Children's Hospital (Sydney, AU), and the Royal Alexandra Children's Hospital (Melbourne, AU). She has also consulted with governmental and professional organizations, including the National Institute of Nursing Research, NIH; Maternal Child Health Bureau; U.S. Public Health Service; and Minnesota Governor's Commission on the Prevention of Unintended Pregnancies. She has lectured and published in adolescent development, parent and peer influences on risk behavior, teenage pregnancy and parenting, intervention strategies designed for youth, and interdisciplinary education and program development for health and social service providers working in adolescence. Her current research focuses on decision-making during adolescence, particularly longitudinal studies of substance use, sexual behavior, and pregnancy outcomes.

DALE A. BLYTH, PhD

Dr. Blyth has been the Director of Research and Evaluation at Search Institute in Minneapolis, Minnesota, since 1990. Search Institute is a nonprofit organization devoted to practical research benefiting children and youth. Previously, he served as Director of the Center for Adolescent Health Policy Analysis at the American Medical Association. He has also served on the faculty of Cornell University and Ohio State University where he taught and did research on adolescent development. He started his career at the Boys Town Center for the Study of Youth Development. Dr. Blyth has served as the Executive Secretary of the Society for Research on Adolescence since its inception in 1984. He and his colleagues have published numerous articles and books on early adolescent social relationships, school transitions, and the impact of puberty. He maintains active memberships in the American Psychological Association, American Evaluation Association, American Sociological Association, American Psychological Society, Society for Research on

Adolescence, Society for Research on Child Development, and the American Educational Research Association. Dr. Blyth is currently examining the impact of communities on adolescent health and development.

KATHLEEN M. DEWALT, PhD

Dr. DeWalt is a Professor of Behavioral Science and Anthropology at the University of Kentucky College of Medicine. She currently serves as the Director of the university's Research Center for Health Risk Reduction in Rural Youth. She has served as President of the Council on Nutritional Anthropology and is a member of the executive board of the Society for Medical Anthropology. Dr. DeWalt has acted as a consultant to the U.S. Agency for International Development, the International Food Policy Research Institute, and the International Life Sciences Institute. She has worked closely with the Kentucky Hunger Task Force on projects aimed at improving access to adequate prenatal health care of low-income women and promotion of school breakfast programs in Kentucky. Her research has focused on factors affecting dietary behavior of families with young children and older adults in rural settings in the United States, and on economic, ecological, social, and cultural factors affecting malnutrition in children in rural settings in Latin America and Africa. She is coauthor of *The Cultural Feast*, the most frequently used text in the study of food and culture, and a number of books, articles, and reports concerning dietary behavior and health.

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Dr. Hayman is Associate Professor and Chair, Nursing of Children Division, University of Pennsylvania School of Nursing, Philadelphia. She also directs Health Corner, a Healthy Start-funded, community-based health promotion program for vulnerable youth. Her program of research focuses on biobehavioral risk factors for cardiovascular disease in childhood and adolescence and promotion of cardiovascular health in early childhood. She serves as the nurse member of the American Heart Association's multidisciplinary Task Force on Children and Youth and the Epidemiology, Prevention and Behavioral Science Research Study Section. Dr. Hayman chairs the Program Committee for the Society of Behavioral Medicine and serves as a member of the American Academy of Nursing's Priority Expert Panel on Adolescents and Young Adults. She consults nationally and internationally on topics relevant to children's heart health.

JUDITH B. IGOE, RN, MS, FAAN

Ms. Igoe is Associate Professor and Director of School Health Programs at the University of Colorado School of Nursing, Denver. From 1986 to 1987, she also held the Parry Chair in health promotion at Texas Women's University. Ms. Igoe's research interests concern the development of assertive and responsible consumer health roles beginning in early childhood. Her HealthPACT consumer health affairs program, begun in 1972, has attracted attention and investigation worldwide. Ms. Igoe is a board member for Colorado Action for Healthy People, the state's lead agency for health promotion. She is also a longstanding member of the American Public Health Association, American School Health Association, American Nurses Association, and National Association of School Nurses, and is a fellow in the American Academy of Nursing. Among Ms. Igoe's most recent publications are *Expanding School Health Services for Families in the 21st Century*, an American Nurses Association publication, and *Principles and Practices of Student Health*, for which she was coeditor. Ms. Igoe also authors and serves as editor of the health promotion column for *Pediatric Nursing*.

CHARLES E. IRWIN, JR., MD

Dr. Irwin is Professor of Pediatrics and Director of the Division of Adolescent Medicine at the University of California, San Francisco, School of Medicine. He also directs the interdisciplinary Adolescent Health Training Project at the University of California, San Francisco, and is a member of the Institute for Health Policy Studies. His research has focused on risk-taking behaviors during adolescence and how clinicians may more effectively identify adolescents who are at risk for engaging in health-compromising behaviors. He is the author of several publications on the development of risky behavior during adolescence and is editor of *Adolescent Social Behavior and Health* (1987). Dr. Irwin is the recipient of the Society for Adolescent Medicine's Outstanding Achievement Award in 1985, the National Center for Youth Law/Youth Law Center's Annual Award recognizing his research in high-risk youth (1988), and the Ambulatory Pediatric Association's Teaching Award for training physicians in behavioral sciences (1990). He received a B.S. degree in biology from Hobart College, a B.M.S. degree from Dartmouth Medical School, and an M.D. degree from the University of California, San Francisco, and he was a Robert Wood Johnson Foundation Clinical Scholar at the University of California, San Francisco–Stanford.

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Dr. Pender is Professor and Director of the Center for Nursing Research at The University of Michigan, Ann Arbor. She also directs the Child/Adolescent Health Behavior Research Center and the Postdoctoral Program in Health Promotion and Risk Reduction. Previously, she served as the Director of the Health Promotion Research Program, Social Science Research Institute, Northern Illinois University. She is nationally recognized for her work in health promotion and is author of *Health Promotion in Nursing Practice*, as well as numerous theoretical and research articles. Her research focuses on the determinants of health behaviors, particularly factors affecting physical activity and exercise patterns in children and adults. Dr. Pender has served as a member of the National Advisory Council on Nursing Research, NIH, and as Cochair of the National Nursing Research Agenda Committee. She is a member of the board of the National Council on the Education of Health Professionals in Health Promotion and a member of the board of directors of Research!America. Dr. Pender is Past-President of the Midwest Nursing Research Society. She is currently President of the American Academy of Nursing.

JAMES F. SALLIS, PhD

Dr. Sallis is Professor of Psychology at San Diego State University and Assistant Adjunct Professor of Pediatrics at the University of California, San Diego. He has authored more than 110 scientific publications related to health and human behavior. Most of his research has focused on the behavioral epidemiology of physical activity, including improvement of assessment methods, identification of determinants of physical activity, and development and evaluation of intervention programs. He has also studied other health behaviors such as diet and smoking. With the support of several granting agencies, he has studied a variety of populations, including children, adolescents, adults, and Latinos. Dr. Sallis is on the editorial boards of four journals. He has consulted with numerous government agencies, corporations, and research projects concerning behavioral issues in health promotion. He is a fellow of the American Heart Association and the American College of Sports Medicine.

MARY LOU DE LEON SIANTZ, PhD, RN, FAAN

Dr. Siantz is an Associate Professor in the Department of Psychiatric/Mental Health Nursing, Indiana University School of Nursing, Indianapolis. She is nationally recognized for her work in the area of Hispanic family research. She is the only doctorally prepared Hispanic nurse in the United States who combines clinical and research expertise in the mental health and development of Hispanic children and their families. Dr. Siantz has consulted on national studies concerning the health care needs of Hispanic families and infant mortality in the minority population. She is currently the principal investigator of a longitudinal research project funded by the Administration for Children, Youth and Family to investigate the successful adaptation of Mexican-American migrant Head Start children. Previously, Dr. Siantz investigated risk factors affecting the health and development of Hispanic children, social and psychological resources of Mexican-American mothers with developmentally disabled preschoolers, and the impact of stress on the maternal depression and maternal behavior of Mexican migrant farm-worker mothers. She was the first nurse named a senior research fellow of the Coalition of Hispanic Mental Health and Human Service Organizations to conduct a secondary analysis of the Hispanic Health and Nutrition Examination Survey.

ELIZABETH J. SUSMAN, PhD, RN

Dr. Susman is Professor of Biobehavioral Health, Human Development, and Nursing at The Pennsylvania State University, University Park, Pennsylvania. She is internationally known for her research on the interactions among hormones and health and development. She is codirector of the university's Behavioral Endocrinology Laboratory and the Center for Child and Adolescent Health and Behavior. Her research focuses on reproductive transitions, puberty, pregnancy, and menopause as critical transition points for understanding the reciprocal influences among social and emotional changes and changes in hormones. She is the author of several empirical and theoretical papers on the interface of behavioral and biological development and health. Dr. Susman's research is funded by the NIH. She is a member of the Core Scientific Group of the Program on Human Development and Criminal Behavior, Harvard University School of Public Health, a program sponsored by the John D. and Catherine T. MacArthur Foundation. She has served as a member of peer review groups at the NIH and private foundations. In addition to her activities as a grant reviewer, she is on the editorial board of *Developmental Psychology* and acts as a reviewer for many other peer review journals. Dr. Susman has been a visiting professor at University College of Health and Care, Jonkoping, Sweden, and Harvard University School of Public Health. She maintains active memberships in such societies as the Academy of Behavioral Medicine Research, American Association for the Advancement of Science, Society for Research in Child Development, and International Society for the Study of Behavioral Development.

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Dr. Webster-Stratton is Professor of Nursing and Director of the Parenting Clinic in the Department of Parent and Child Nursing, University of Washington, Seattle. She is a nurse-practitioner and licensed clinical psychologist who has worked with more than 600 families with behavior-problem children. Her research interests focus on developing and evaluating different types of treatment programs for parents and for children with conduct disorders. She has published numerous scientific articles evaluating these treatment programs. She has developed a comprehensive series of more than 21 parent-training videotapes and leader-training manuals, as well as a series of videotapes and manuals for training children directly. In addition to her work on treating families with diagnosed problems, she also is involved in research, evaluating methods of preventing childhood behavior problems and mental illness from occurring in the first place. Most recently, her research has been supported by a Head Start-University Partnership grant and a grant using her videotape for programs in grade school. She recently published a book for parents, entitled *The Incredible Years: A Troubleshooting Guide for Parents.*

The views expressed in this report are solely those of the Panel participants, and do not necessarily constitute an endorsement, real or implied, by the U.S. Department of Health and Human Services.

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